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Monthly Cyclopedia and Medical Bulletin

(CONSOLIDATED)

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NEWS AND THERAPEUTIC HINTS.

CANCER OF ESOPHAGUS.

For the dysphagia in cancer of the esophagus, Sée recommends the following:—

R Dioninæ,
Codeinæ hydrochloridi, āā gr. iss.
Cocainæ hydrochloridi, gr. iv.
Ammonii valeratis,
Aquæ amygdalæ amaræ, āā ʒij.

M. Sig.: Of this solution, 15 drops should be taken three or four times a day. (Rev. de thérapeutique.)

CODLIVER-OIL JELLY.

R Gelatini puri, ʒss.
Aquæ,
Syrupi, āā fʒiv.
Olei morrhuæ, fʒviij.
Olei cinnamomi, q. s.

M. Fiat secundum artem.

The gelatin should first be dissolved in the water, the latter having been previously heated to boiling. The syrup, oil, and aromatic essence are then to be added, the receptacle placed in cold water, and the mixture beaten for five

minutes and then allowed to solidify. (Merck's Archives.)

TREATMENT OF SEASICKNESS.

Auerbach, in *Semaine médicale*, is credited with the statement that to prevent or relieve seasickness a combination of caffeine, theobromine, and camphor is especially useful. The object of giving these remedies is, in particular, to overcome ischemia of the brain, which is believed to be an important factor in the production of seasickness. In adults, Auerbach prescribes 0.2 Gm. (3 grains) of camphor, together with 0.5 Gm. (7½ grains) each of caffeine and sodium salicylate and of theobromine and sodium salicylate. It is necessary that these drugs be given in keratin-coated capsules, in order that contact with the gastric mucosa, which would increase the nausea already present, may be avoided. Where a rapid effect is necessary, hypodermic injections of caffeine and sodium salicylate may be used. In particularly serious cases, moreover, intravenous injections of epinephrin might be of value. (N. Y. Med. Jour.)

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NEWS AND THERAPEUTIC HINTS.

WHOOPIING-COUGH.

To combat the infective factor in pertussis, Zanger recommends the use of quinine in the form of a 1 to 2 per cent. solution of the hydrochloride in doses of 3iiss, given at 8 A.M., 2 P.M., and 6 P.M., and in severe cases at 11 A.M. also. (Med. Standard.)

BALSAM OF PERU AS A NASAL ANTISEPTIC.

Balsam of Peru, introduced in the nasal fossæ, is useful in the treatment of influenza, in infections of the ear, and in the pharyngeal passages. The difficulty, however, has been in its application. Nasal irrigations of other antiseptics are not recommended in acute cases on account of the danger of otitis. Pulverization of the nasal cavities with mentholated oil is useless, since it is impossible to reach beyond the anterior portions of the nasal fossæ and the procedure merely diminishes the caliber of the blood-vessels and does not act as antiseptic in the posterior nares. Instillations of oils and ointments are more rational, and none are more effective than the following:—

R Balsam of Peru, 0.75 Gm.
Lanolin, 5 Gm.
Petrolatum, 10 Gm.

This ointment can be placed in a compressible metallic tube and used at the onset of the catarrhal stage to abort a "cold in the head." Patient should be placed on his back and the extremity of the tube introduced gently, and contents pressed out. Patient should be instructed to snuff up the ointment until it falls into the posterior nares. Any excess can then be easily expelled by the patient. This treatment should be carried out morning and evening. (Med. Tribune.)

AMENORRHEA.

The following prescription has been found of value in amenorrhea due to a cold:—

R Euquininæ, 3iiss.
Ext. nucis vomicæ, gr. xij.
Olei sabinæ, ℥xxx.
Pulv. aloes, gr. viij.
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M. et div. in pil. no. xlviij.

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NEWS AND THERAPEUTIC HINTS.

DUSTING POWDER FOR BEDSORES IN TYPHOID FEVER.

R Bismuth subgallate, 10 Gm.
Cocaine hydrochloride, 2 Gm.
Powdered benzoin, 5 Gm.
Starch, 20 Gm.

Mix. (Bacelli, in Tribune médicale.)

COLLODION IN BOILS.

Furuncles are now being treated by painting a ring of collodion around the seat of the lesion. Repeated several times daily, this has been found to exert a gentle and increasing pressure on the boil, which results in its eventually bursting, the core being expressed at the same time. The use of sodium citrate has also been advocated, a 1 per cent. solution in normal saline applied on a gauze dressing having been found to set up a flow of lymph and maintain the fluidity of the serum. (Critic and Guide.)

WEIGHT OF NEWBORN.

Bondi (Wiener klin. Woch.) concludes that clinical investigation indicates that fetal growth and development are independent of the mother's nutritional condition and that the fetus thrives in the host as a malignant tumor. Clinical experiments in feeding pregnant women show that the fetus cannot be influenced by dieting the mother. Reducing the diet of the pregnant woman is dangerous to the patient on account of the added strain of disturbed nutrition and possible intoxication. (Boston Medical and Surgical Journal.)

SUBACUTE RHEUMATISM.

Oppenheim advises the following local applications:—

R Mentholis, gr. xv.
Guaiacolis, 3j.
Methylis salicylatis, 3j.
Linimentum camphoræ, q. s. ad 3iv.

M. et ft. linimentum.

Sig.: Use locally on affected parts.

R Acidi salicylici,
Olei terebinthinæ, āā 3j.
Adipis lanæ,
Adipis, āā 3iv.

M. et ft. ung.

Sig.: To be applied frequently to affected parts.

R Chlorali hydrati,
Potassii bromidi, āā 3j.
Syrupi codeinæ (1:500), 3j.
Aquæ, q. s. ad 3iv.

M. Sig.: One tablespoonful at night. (Progrès médical.)



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NORMAL TEMPERATURE OF CHILDREN.

D. Fraenkel (Deutsch. med. Woch.) says that in routine examination of healthy children it is not uncommon to find a high temperature with nothing to account for it. This phenomenon is frequently interpreted as evidence of latent tuberculosis. Hamburger holds that in the absence of other disease a temperature over 99.57°, or a difference of 1° Fahrenheit between the morning and evening temperatures, is proof positive of tuberculosis. There are many other explanations of obscure fever in children. Some have been subfebrile for many months, and the temperature has fallen to normal as soon as the tonsils were removed. A high rectal temperature has been attributed to the local action of the intestinal flora, or to nervousness during a consultation. Opinions as to the limits of normal temperature in children vary considerably, and the estimations of the maximum normal temperatures range from 98.6° to 99.5°.

The writer has measured the temperatures of 163 children in a hospital for nervous, scrofulous, and convalescent children. She found no difference in the temperature between the ages of 5 and 16. The rectal temperature was found to be over 99.7° in every case after walking or playing about in the afternoon. In 74 per cent. the temperature ranged between 100° and 101°. But after an half-hour to an hour's rest, it fell to 99.3° or less.

It was thought that children with the highest temperatures after exercise would prove to be tuberculous. A positive reaction to tuberculin was obtained in 113 of the 163. But no correlation between an unstable temperature and a positive reaction to tuberculin could be established. A relation between the atmospheric and the body temperature was anticipated, and it was found that in 99 out of 146 children the temperature of the body was unaffected by the atmospheric temperature, while the temperature of the remainder showed fluctuations corresponding with those of the atmospheric temperature. Children with a neuropathic taint were more affected by the atmospheric temperature than others. The rectal temperature after an hour's rest in bed in the evening was 99° or less in 96.3 per cent., and as high as 99.3° in only 3.7 per cent. (Pediatrics.)



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NEWS AND THERAPEUTIC HINTS.

EARACHE.

R Mentholis,
Camphoræ, ãã 1.3 Gm.
Phenolis, 1 Gm.
Glycerini, 30 c.c.

M. Sig.: Gtt. x, warmed and dropped in the ear. (Med. Sentinel.)

CHRONIC BRONCHITIS.

R Creosoti carbonatis,
Acaciæ, ãã 3ss.
Syrupi, f3iij.
Aque cinnamomi, f3vj.

M. Sig.: Shake. One dessertspoonful every two hours. (Merck's Archives.)

WRITERS' CRAMP.

Treatment consists of rest to the part and mental quiet, with tonics and other means to improve the general nutrition. Faradism in weak applications once or twice weekly seems useful. The following combination may be of value:—

R Zinci phosphidi, gr. ij.
Ext. nucis vomicæ, gr. x.
Ferri albuminatis, gr. xxx.

M. et div. in pil. no. xxx.

Sig.: One pill after meals. (Hughes, in Merck's Archives.)

CYSTITIS WITH ATONY OF BLADDER.

R Strychnine sulphate, gr. j.
Tincture of cantharides, gtt. xxx.
Sugar of milk, gr. xlvij.

Mix and make 30 pills. One pill after meals. (Med. World.)

FOLLICULAR TONSILLITIS.

The local application of aspirin has given Fetterolf satisfactory results in cases of follicular tonsillitis. Mucus should first be removed from the tonsil with a solution of sodium bicarbonate. The region is then swabbed with pulverized aspirin on a piece of cotton. Both tonsils should be treated even if the inflammation is unilateral. Applications should be made at twelve-hour intervals. (Jour. Med. Soc. of N. J.)

WATER REQUIREMENT OF THE INFANT.

L. F. Meyer points out that the living tissues consist of more than one-half of water. In the growing organism water plays a more important rôle than in the full-grown animal. It was shown by O. and W. Heubner that an inadequate gain in weight in nursing infants is often to be attributed to an insufficient supply of water to the infant. In an experimental investigation conducted with a view of testing this observation, the author succeeded in differentiating three groups of children: 1. Those fed on a concentrated and sweetened preparation of casein-milk, who lost in weight and gained only when water was added to the diet. 2. Children that on a similar diet maintained a stationary weight and gained only on the addition of water. 3. Children that on a concentrated diet thrived and gained in weight, but that at the end of a number of weeks attained a stationary weight; at this stage the addition of water to the diet was followed by an increase in weight. The following practical rule is laid down: An infant needs on an average daily 150 Gm. of water for each kilogram of body weight. (Zeitschrift für Kinderheilkunde.)

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NEWS AND THERAPEUTIC HINTS.

SCIATICA.

R Aspirin,
Phenacetin, of each, 3j.
Quinine salicylate, gr. xx.
Codeine sulphate, gr. iiss to v.

M. et ft. in caps. no. x.

Sig.: One every two or three hours. (Medical Summary.)

RULE FOR ADMINISTRATION OF UNUSUAL FRACTIONAL DOSES OF A DRUG.

Dr. M. S. Aaronson, of New York, writes that he has devised a rule whereby one may readily administer any fractional dose of a drug, starting out with one of the standard tablets of known strength. Thus if one has a tablet of morphine containing $\frac{1}{8}$ grain, and if it is desired to administer $\frac{1}{60}$ grain of this drug, the procedure is as follows: Take 66 minims of water and in this dissolve the tablet. Eight minims of this solution contains the required dose. This rule is applicable in the administration of any fractional dose, whether or not the denominator of the fraction is a multiple of the denominator

of the fraction represented in the tablet as supplied by the manufacturer. (Med. Record.)

PHYSICS OF THE EMOTIONS.

The exaltation of victory makes wounded soldiers oblivious of pain, and the depression of defeat increases mortality. If a cat is frightened for ten or fifteen minutes by a barking dog, a sample of its blood will make strips of certain muscles relax when they are immersed in it, though such a portion of blood had no effect on them before the emotional disturbance. Frightened rabbits show almost complete prostration, and their brain cells, in contrast with those of normal animals, take a deeper stain from certain chemicals, and their size and shape are strikingly altered. Finally, if an individual is placed in circuit with a delicate galvanometer and made to laugh, to feel sad, or is suddenly surprised, there will be movements in the instrument indicating the passage of small electric currents. Such interesting scientific facts as these, and many others, make it clearly evident that emotions are something more than mere states of mind. (F. W. Eastman, in Harper's Magazine.)

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NEWS AND THERAPEUTIC HINTS.

RENAL COLIC.

Raymond recommends the following anodyne plaster in renal colic:—

℞ Ext. opii,
Ext. belladonnæ foliorum,
Ext. conii,
Ext. hyoscyami, āā partes ij.
Camphoræ, partes v.
(Merck's Archives.)

RECTAL FEEDING.

℞ Vitelli ovi, 2.
Peptoni,
Glucosi purificati,
Spt. vini gallici, āā 25 Gm.
Tinct. opii, gtt. x.
Sodii chloridi, 3 Gm.
Lactis, q. s. ad 200 c.c.
(Merck's Archives.)

TREATMENT OF ANAL FISSURE.

Roux, in Lyon médical, is stated, on the basis of 8 cases treated by him, to approve strongly of a method, first recommended by Lewis, of Brook-

lyn, which consists in applying to the fissure, held open for the purpose, a saturated solution of potassium permanganate. Sharp pain is induced, but this may be avoided or at least greatly lessened by previous application for a few minutes of a small tampon dipped in a 2 or 3 per cent. solution of cocaine hydrochloride. The application of permanganate solution is made daily. Cure results frequently in two or three days. (N. Y. Med. Jour.)

IMPROVED ESBACH FORMULA.

Esbach's test for albumin in urine has been improved upon by Tsuchiya, in the following reagent, which is used just as is the Esbach reagent:

℞ Phosphotungstic acid, 1.5 Gm.
Alcohol (96 per cent.), 95 c.c.
Concentrated hydrochloric acid, 5 c.c.

The urine should be diluted to a specific gravity not exceeding 1.008. The method is said to be much more accurate than the original Esbach when one has to deal with small quantities of albumin. (Med. World.)

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RHEUMATISM: MALARIA:
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Children in proportion.

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NEWS AND THERAPEUTIC HINTS.

ITCH.

R Mentholi, gr. xl.
Ichthyoli, ℥iv.
Calcii sulphurati, ℥j.
Sulphuris, ℥ij.
Lanolin,
Olei olivæ, āā q. s. ad ℥ijj.
Sig.: Apply as required. (So. Practitioner.)

ACUTE BRONCHITIS.

R Apomorphinæ hydrochloridi, gr. ss.
Sodii bromidi, ℥ijj.
Tinct. sanguinaræ, ℥ss.
Syrupi Tolutani, ℥ij.
M. Sig.: One teaspoonful in a wineglass of
water every two hours.
R Ammonii chloridi,
Ext. glycyrrhizæ, āā ℥ss.
Fluidext. eucalypti, ℥j.
Syrupi eriodictyi, q. s. ad ℥iv.
M. Sig.: One teaspoonful in water every four
hours. (Wilcox, in Merck's Archives.)

IMMEDIATE PERCUSSION WITH A SINGLE FINGER.

The anonymous writer states that this method of percussion is the only one employed by Obratzov, who found immediate percussion indispensable in percussing the limit of the stomach after listening to the splash, as the intervention of the pleximeter or another finger caused him to miss the line of demarcation between stomach and intestine. Subsequently he found this method useful in delimiting other abdominal organs. In the thorax it is not good for examining the apices, but excellent for the detection of pleural effusions. To mark out the heart, the single-finger method is superior. The patient is best in the upright position. The left hand is used to exercise necessary pressure on the wall and to move to one side fatty folds or, in a woman, the breast. He has found that both in neurasthenia and emphysema the cardiac dullness is lowered and the beat is accompanied by epigastric pulsations. He has also found a definite relation between the areas of cardiac and hepatic dullness; for example, if the former shows its upper limit at the fourth rib, the latter will begin at the sixth. (Semaine médicale; Med. World.)

NEWS AND THERAPEUTIC HINTS.

FLATULENCE.

R Creosoti, gtt. xxxiv.
Syr. lavandul., ℥iij.
Syrupi, ℥j.

M. Sig.: Teaspoonful in water *t. i. d.* (Med. Sentinel.)

WEEPING ERYTHEMATOUS ECZEMA.

When occurring upon the face there is usually much edema of the loose tissue in the infra-orbital region, so that the condition may be mistaken for erysipelas. Avoid greasy applications and use wet dressings soaked in normal saline. This lotion will relieve the irritation and smarting:—

R Calaminæ, ℥ij.
Zinci oxidi, ℥j.
Glycerini, ℥ss.
Liquoris calcis, q. s. ad ℥vj.

M. et ft. lotio.

When the exudation has practically ceased, one may use a powder of oleopalmitate of zinc, mixed with one-half its weight of powdered starch, or this zinc cream:—

R Zinci oxidi, ℥j.
Adipis lanæ, ℥ij.
Olei olivæ,
Liquoris calcis, āa partes æquales ad ℥iv.

M. et ft. cremor. (Can. Lancet.)

TREATMENT OF BURNS.

Vargas, in *Journal de médecine de Paris*, recommends the following application in burns:—

R Finely powdered neutral dextrin, ℥iv (125 Gm.).
Tincture of aloes, ℥iiss (65 Gm.).
Diluted alcohol, ℥j (30 Gm.).
Lead nitrate (C. P.), gr. xlv (3 Gm.).
Phenol, gtt. xxv.
Tannic acid, gr. xv (1 Gm.).
Cherry-laurel water, ℥v (150 Gm.).

M. Sig.: To be painted over the burned area. Another useful combination is:—

R Lead carbonate, ℥iij (91 Gm.).
Powdered gum arabic, ℥iss (6 Gm.).
Sodium bicarbonate, ℥ss (2 Gm.).
Linseed oil, q. s.

Make a cream.

Sig.: To be applied after opening the blisters.

This preparation should not be used repeatedly at short intervals, unless there is suppuration. No signs of lead poisoning have ever been observed after its use, probably owing to the gum arabic it contains. (N. Y. Med. Jour.)

PHENOL AS AN ANTISEPTIC DRESSING.

Rub up in a mortar equal parts of camphor and hydrated chloral until they liquefy; then add to this liquid half its volume of phenol crystals and triturate again. The resultant clear liquid is diluted according to occasion. The author almost invariably dilutes phenol in olive oil, making, usually, a 5 per cent. solution. This, while markedly antiseptic, results in no harmful absorption, as does the aqueous solution. The triple compound noted above may also be incorporated with oil. (S. D. Sauer, in *Medical Council*.)

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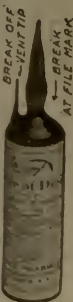
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NEWS AND THERAPEUTIC HINTS.

ALUM IN HERPES.

George O. Williams, of New York, has found a saturated watery solution of alum practically a specific in herpes, applying it even to the conjunctiva or the cornea. The results have been most satisfactory. This is especially noteworthy in view of the fact that the applications ordinarily employed for herpes are of very little use. This very annoying and disfiguring malady usually runs its course unaffected by treatment. (Amer. Jour. of Clin. Med.)

TREATMENT OF SCARS.

Kirchberg, an authority on massage, contributes to the Deutsche med. Woch. a study of scar treatment on a basis of manipulation, the latter being peculiarly adapted to meet the different indications. The intense itching, the pressure pains due to retraction, the disfigurement, disability, the likelihood of scar keloid and scar cancer developing, the susceptibility to injury, all furnish indications for treatment. The author divides scars into (1) flat, level with skin, mostly white; (2) deep, atrophic, and (3) hypertrophic. The first variety is chiefly a blemish of cosmetic significance only, and may be tattooed in such way as to conceal them. In the deep, atrophic form, the subjacent adhesions must be detached. While treatment of pittings from small-pox and acne is on the whole unsatisfactory, some excellent results have been secured by massage, but this must often be kept up month in and out. The movements consist of surface frictions with finger-tips, the skin also being pushed or pulled back and forth over

the subjacent bones. The manual massage must be supplemented by vibrations. Even after many years this treatment may be begun with good prospects for success. Hypertrophic scars require special measures—compression with plaster, fibrolysin, etc. (Medical Record.)

ACIDOSIS.

R Magnesii peroxidi, gr. iv.
Sodii bicarbonatis,
Calcii carbonatis, āā gr. ij.
Da tal. dos. no. xx.
Sig.: One powder four to six times a day.
(Merck's Archives.)

EMETIC FOR CHILDREN.

The following mixture, known as "linctus emeticus," is well adapted for use in children:—

R Tartar emetic, 0.06 Gm.
Powdered ipecac, 1.2 Gm.
Distilled water, 30 Gm.
Oxymel of squill (B. P.),
Simple syrup, of each, 15 Gm.

Of this mixture there should be given from 1 teaspoonful to 1 tablespoonful every fifteen minutes until the effect is produced. (Med. Rec.)

TREATMENT OF GASTROINTESTINAL ATONY.

R Magnesii oxidi,
Cretæ præparatæ, āā ʒss (15 Gm.).
Calumbæ pulveris, gr. xv (1 Gm.).
Vanillæ pulveris, gr. viiss (0.5 Gm.).
M. Sig.: One-half teaspoonful before each meal. (Med. Sentinel.)

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it is often desirable to increase its functional activity without causing undue catharsis. The most effective agent for this purpose is

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F. A. DAVIS COMPANY, Medical Publishers, 1914-16 Cherry St., Philadelphia, Pa.

NEWS AND THERAPEUTIC HINTS.

ointment for PRURITUS ANI.

Tuttle highly commends the following formula in pruritus of the anus:—

℞ Phenol, ʒij.
Salicylic acid, ʒiiss.
Sodium borate, ʒj.
Glycerin, ʒj.

Mix, and apply on retiring, and during night, if necessary. (Med. World.)

TREATMENT OF NEURALGIC HEADACHE.

J. A. Lindsay, in *Clinical Journal*, advises that, in ordinary neuralgic headache, oftenest involving the trigeminus, the state of the teeth be carefully investigated. In a patient suffering from an intractable trigeminal neuralgia, and with teeth apparently perfect, it was at length noticed that one of the molars was slightly tender on being sharply tapped with a tongue depressor. Upon removal of this tooth the neuralgia disappeared.

The most successful medicinal combination for trigeminal neuralgia is, according to the author's experience, one of butyl chloral hydrate (croton chloral), gelsemium, and sodium bromide. General tonics are useful, especially iron; alcohol, which should be recommended only with much

circumspection, has a certain degree of utility. Local applications are not very successful, though an ointment of aconitine is worth trying. Warmth to the affected parts is useful. In all forms of headache, rest, physical and psychic, is of the first importance. (N. Y. Med. Jour.)

CALMATIVE ENEMA.

Mialhe, in *Paris médical*, is credited with the following method of preparing an enema to be employed as general nerve sedative: Make an infusion of valerian root, heating for half an hour:—

℞ Valerianæ, ʒiiss (10 Gm.).
Aquæ bullientis, ʒiiss (200 Gm.).
Fiat infusum.
Deinde adds:—
℞ Potassii carbonatis, gr. viiss (0.5 Gm.).
Asafetidæ, gr. xv (1 Gm.).
Vitelli ovi, no. j.

Misce.

The asafetida should be ground up with the carbonate, moistened with the yolk of egg, and the infusion then added, little by little. (N. Y. Med. Jour.)

NEWS AND THERAPEUTIC HINTS.

TREATMENT OF PHLYCTENULAR CONJUNCTIVITIS.

Sabouraud advises the use of the following collyrium in this affection:—

R Cupri sulphatis,
Potassii nitratis,
Aluminis, āā gr. j.
Aquæ camphoræ, ʒiv.

(Critic and Guide.)

ANOREXIA.

R Fluidext. condurango, ʒiv.
Strychninæ sulphatis, gr. j-v.
Acidi hydrochlorici dil., ʒij.
Elixir gentianæ, q. s. ad ʒvj.

M. Sig.: Tablespoonful before meals in water through a tube. (Med. Sentinel.)

FROST-BITE.

R Ichthyolis, fʒij.
Ung. plumbi, ʒiv.
Pulv. camphoræ, gr. xxx.

M. et ft. ung.

Sig.: Apply freely once or twice daily; cover with cotton-wool. (Merck's Archives.)

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NEWS AND THERAPEUTIC HINTS.

CHANCROID.

Szanto applies the following ointment to chancroids after they have been thoroughly cleansed:

R Acidi salicylici, gr. xv.

Tinct. benzoini, 3ss.

Petrolati, 3j.

M. et ft. ung.

(Merck's Archives.)

VARICELLA.

R Ichthyolis, 3iss.

Phenolis, gr. v.

Adipis lanæ hydrosi, 3iij.

Petrolati, q. s. ad 3j.

M. et ft. ung.

Sig.: Apply on lint once daily after crusts have formed. (Merck's Archives.)

SUGGESTION FOR ANTIVIVISECTIONISTS.

It is now announced that man's friend and companion, *Cimex lectularious*, is a carrier of tuberculosis. Whence came this knowledge? Alas, we know only too well and we trust that the anti-vivisection heroines will arise, ere it is too late, ascertain what soulless experimenters are searing

and crushing and tearing this affectionate little bed-fellow of the poor man, and write letters to their accredited organ, *Life*, with the usual sublime attacks on the medical profession. Only a hardened brute can ponder with indifference the idea of a tiny insect, not only helpless, but sick of a dreadful disease, subjected to the tortures of the heavy steel racks and red-hot irons of the anti imagination, instead of being permitted peacefully to cough its little life away. It is hard to conceive a more pathetic picture than that of a row of bedbugs facing the relentless chief of staff and meditating in unison *Mortituri te salutamus*. (N. Y. Med. Jour.)

HEMORRHOIDS.

In hemorrhoids consequent upon hepatic engorgement and intestinal atony, stillingia is said to be a specific, in the following method of exhibition:—

R Fluidextract stillingia,

Tincture belladonna,

Tincture nux vomica,

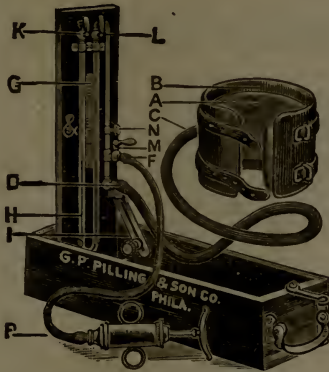
Tincture physostigma, of each, 3v.

Mix and direct 20 drops in water before meals. (Med. World.)

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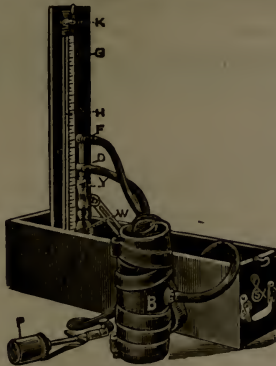
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NEWS AND THERAPEUTIC HINTS.

INVENTION OF SPECTACLES.

Oliver states that there is ample evidence to show that biconvex lenses were used by the ancients as burning glasses. Pliny relates that glass balls filled with water were used by physicians for burning, and were to be bought from medicine dealers, and, perhaps, formed part of the armamentarium of the practitioner. That glasses were invented at the end of the thirteenth century in Italy is abundantly shown by the great majority of contributors to the history of this subject, and either by Armati and Spina together or independently of each other. At the same time in Germany and Flanders old people were using glasses. The first medical man to mention glasses was Bernard Fordon, educated at Salerno, and professor in Montpellier. He said that they were not necessary, thanks to his remedies for eye complaints, which so excelled that they made those whose sight was failing able to read small print without the use of glasses. Guy de Chauliac, body physician to Popes Clement VI, Innocent VI, and Urban V, also lauded his own eye lotion, but added: "If this doesn't relieve you, then try eyeglasses." No one at this time knew anything at all about the refraction of light; hence the senseless talk about the various remedies. The laws of optics, relating to glass lenses, have been known only since the time of Maurolycus (A. D. 1494-1575) and the immortal Kepler (A. D. 1571-1630). The physician who first ordered glasses in a pro-

fessional capacity was one Montanus, a teacher in Padua. He ordered protecting glasses, reading glasses, and, some say, prisms. Physicians at this time evinced great hostility to the wearing of glasses, and owing to the way in which they dissuaded the people from their use it was not to be expected that it would spread very rapidly. In early times men were strongly opposed to this custom, as at first glasses were ill-shaped and most disagreeably striking in appearance, and, more than this, they directed the attention to a physical disability. Patients wearing glasses were made fun of, and not altogether in a very tender manner. Their prohibitive costliness rendered the wide adoption of spectacles impossible. At the end of the sixteenth century the price per pair, expressed in terms of present-day value, was from fifty to a hundred dollars. From this circumstance glasses which frequently had costly ornamental fittings were seldom seen, and then in the possession of wealthy people only. The history of the development and use of the concave lens is very different from that of the convex variety; it came on the scene much later. There is no mention whatever of concave glasses by the ancients, though short-sightedness was well known, not as an error of refraction, but as a weakness of the eye. One can assume with a fair degree of certainty that concave glasses came into use about the middle of the sixteenth century. (Brit. Med. Jour.)

PIPE CLAY AS A GASTRIC REMEDY.

Léon Meunier, in *Gazette médicale de Paris*, states that kaolin (pipe clay, official as kaolinum) bears comparison well with bismuth subnitrate as a reliever of gastric pain. Mixed with water, the clay forms a paste which adheres to the stomach wall even more strongly than the bismuth salt. If kaolin is given to a normal individual, and a few days later bismuth, washing out the stomach twenty-four hours after their ingestion will show that the bismuth is entirely gone while traces of kaolin are still present. Examination of the stomach contents demonstrates that gastric acidity is much lower after kaolin than after bismuth. The stools are not blackened by kaolin as they are by bismuth; intestinal hemorrhage is therefore not masked by it. (N. Y. Med. Jour.)

CUTANEOUS FISSURES.

R Phenolis salicylatis, gr. xxx.
Mentholis, gr. xv.
Olei olivæ, mxxx.
Adipis lanæ hydrosi, ʒiiss.
M. et ft. ung.

(Steffen, in Merck's Archives.)

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Spir. caryophylli, ʒss.
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M. et sig.: Add 1 teaspoonful to a glass of warm water.

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Gusserow recommends the use of the following ointment:—

℞ Cocaine hydrochloride, 0.15 Gm.
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Lanolin, to make 40 Gm.

Fritsch prescribes the following mixture for internal use:—

℞ Potassium bromide,
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Ammonium bromide,
Chloral hydrate, of each, 5 Gm.
Morphine hydrochloride, 0.05 Gm.
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Distilled water, to make 200 c.c.

M. Sig.: One to two tablespoonfuls to be taken at night. (Med. Rec.)

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NEWS AND THERAPEUTIC HINTS.

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Zinc sulphate, of each, ʒiv.
Rose water, ʒxv.
Alcohol, ʒiv.

Mix, and rub the affected parts at night. On the following morning; wash well with hot water, and considerable friction with a coarse cloth, dry, and apply:—

- ℞ Borax, ʒvj.
Glycerin, ʒij.
Rose water, ʒxij.

(Med. World.)

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B. G. R. Williams, Paris Ill. (Jour. Amer. Med. Assoc.), describes a blood-staining method which he has used for several years with such satisfactory results as to warrant in his opinion the qualification "invariable." Briefly, it consists of a nuclear part, a special hematoxylin, and the cytoplasmic part, water-soluble eosin. One-tenth Gm. of the eosin is dissolved in 312 c.c. of a three months' ripened Ehrlich hematoxylin and the mixture filtered if necessary. It may keep indefinitely if tightly corked, even improving with age. "The technique is simple: Merely fix with burning absolute alcohol, and, after cooling, immerse the preparation in the stain for fifteen minutes. Then wash in tap-water and dry. First of all light a burner (this insures prompt ignition of the alcohol before any of the erythrocytes suffer injury), seize the slide bearing the dried film, and with suitable forceps hold with film face upward. Quickly cover with absolute alcohol. Shake off excess and then ignite in the flame, removing preparation immediately from the flame. The alcohol will flash off, leaving a dry and perfectly fixed film. Ignition must be prompt and alcohol absolute. Permit the slide to cool and then place in Coplin jar filled with the 'invariable.' After fifteen minutes, remove the slide and wash in tap-water. Dry between blotters or by gentle heat according to standard methods. Staining solution may be used many times." The advantages claimed are the possibility of determining the nature of all anemias, leukemias, etc., and generally meeting all the needs of any stain as far as everyday work is concerned. It is also reliable as well as being rapid and the simplest. Of all the nuclear stains it is the most beautiful.

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PUBLISHED THE LAST OF EACH MONTH

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No. 1

Announcement

THE literature on the internal secretions has increased in recent years at a rate which even the most sanguine advocates of this line of research could not but deem astounding. In a recent issue of a German medical fortnightly, for example, *thirty* abstracts were devoted to the ductless glands alone, although the number of the journal containing them was in no way intended as a special issue on the subject. The absence of any such source of information on this side of the Atlantic in a field of knowledge with which every physician and surgeon should be familiar, has caused the editors to create a special department, in which will be incorporated what to them appears best calculated to convey the progressive features of the work done in all countries. What original articles are published will only be such as will be thought to contain some new suggestion or feature based on a careful scrutiny of available knowledge on the question treated. Full summaries of *selected* articles from the general literature, full credit being given to all journals quoted, will constitute a large part of the department, while a series of short abstracts will make it possible to utilize to greater advantage the remaining space. On the whole, it will be the aim of the editors to portray faithfully the vast progress made both on the scientific and practical sides of all that pertains to the internal secretions. This will apply not only to the various disorders of the ductless glands themselves and to organotherapy, but also to all work bearing upon the important influence of the internal secretions on the pathogenesis, prophylaxis, and therapeutics of all diseases of the body at large—a subject which is only beginning to receive the attention it deserves.

Department on the Internal Secretions

Original Articles and Summaries of Selected Articles

THE ANTITOXIC FUNCTIONS OF THE THYROID IN THE PATHOGENESIS AND TREATMENT OF GOITER.*

BY CHARLES E. DE M. SAJOUS, M.D., LL.D.,

PHILADELPHIA.

ALTHOUGH what has been termed "detoxicatory" functions have been ascribed to the thyroid gland, the relationship that this function might have with the pathogenesis of goiter has escaped attention. Authors are in accord as to the fact that the disease is due to some form of intoxication, whether the still obscure agent be calcium, some other water-borne inorganic poison, a bacterial toxin, etc. Such being the case, we have reasonable ground for the belief, in keeping with the teachings of modern research, that this poison excites in the body a defensive reaction. If the line of reasoning submitted in this paper is correct, therefore, we must add to our present conception of the pathogenesis of goiter the postulate that the causative agent in a given case acts by awakening, in the thyroid gland and its accessory parathyroid glandules, a reaction having for its purpose the destruction of that pathogenic agent.

This involves, first of all, the necessity of showing that the thyroid apparatus—by which I mean the thyroid and parathyroids—is capable of carrying on such functions. The fact that these organs jointly destroy certain poisons has long been known. Some authors held that the antitoxic process occurred in the gland itself; others that it was effected by means of a secretion or secretions contributed by the organs to the blood, the antitoxic process being carried on in the blood itself. The bulk of evidence soon showed, however, that the latter process was the true one. Striking in this connection is the fact that while removal of the thyroid and parathyroids produces tetany, now known to be due to the accumulation of certain organic poisons in the blood, the administration of these glands or grafting counteracts at least for a time the morbid effects of the operation. That the organs had for their functions to destroy these organic poisons is therefore evident. The identity of the poisons thus destroyed is suggested by the fact that the

* Read by invitation before the Cumberland County, Me., Medical Society, December 19, 1913.

paroxysms are far more severe when the experimental animal is fed meat than when a milk diet is adhered to. Moreover, the blood of thyroidectomized animals has been shown to be toxic to other animals. On the whole, we should, as I urged eleven years ago, ascribe to the thyroid both metabolic and antitoxic functions. Swale Vincent wrote recently: "The most usually accepted theory is that the thyroid manufactures an internal secretion which is essential to the proper growth and normal metabolic functions of the whole body," and, furthermore, that "this may easily and reasonably be combined with the antitoxic theory. It may be supposed," adds this author, "that the function of the internal secretion is to prevent poisoning by the products of body metabolism or by infections from without." He further summarizes much evidence, that I will spare you, by the remark that "the extreme liability of thyroidectomized animals to various infective conditions is strong evidence in support of this view." My own contributions to this idea will be submitted later.

When I ask you to associate this antitoxic function with goiter, it becomes necessary, however, to account for the enlargement of the thyroid gland which constitutes this disease. Here, we must not lose sight of the fact that many varieties of goitrous enlargement are recognized, precisely as the heart is subject to enlargement from many different causes. We consider cardiac enlargement as a mere symptom, whereas in the case of goiter we give the same enlargement the predominating rôle, slighting the many other features of morbid processes at least as varied as those met with in the heart. Again, we overlook the fact that the thyroparathyroid apparatus, like all other organs, is subject to many widely different organic disorders. Just as carcinoma, sarcoma, fibroma, cyst, angioma, degeneration, hypertrophy, and other familiar morbid changes occur in the heart muscle, so do we have a correspondingly great number of pathologic conditions in the thyroid apparatus. The symptom-complex of each of these must be as clearly identified, therefore, as any heart disease, in order that it may be treated intelligently and disappearance of the growth caused—if the morbid changes in the organ are not sufficiently advanced to defeat all efforts in that direction.

The surgical removal of a goiter is not a cure for goiter; it means the removal of a once useful organ which has been permitted, through neglect, to reach a condition of invalidism, partial or complete. Worse even than an amputated leg—which, by the way, does not mean a cured leg, but a buried leg—loss of the thyroid may mean, particularly in children, deterioration of the entire organism, including the organ of mind. So utterly oblivious are writers in this direction that some textbooks of medicine do not even refer to goiter, leaving it entirely to surgeons to describe the disease from their viewpoint, which reduces itself to descriptions of the pathology of fully developed growths, their physical characteristics, the pressure symptoms, and the surgical procedures indicated. Of their pathogenesis, that is to say, the relations between cause and effect, nothing; of the relations between the growth and bodily functions, nothing; of the process through which the occurrence of goiter could

be prevented, nothing; of the methods by which the functions of the thyroid can be restored to normal limits, nothing. Yet, rightly does the surgeon remain within his sphere; the physician has, so to say, allowed the disease to develop beyond his own reach. And so will it continue, in my opinion, until the physician makes the *functions* of the thyroparathyroid apparatus the basis of his researches on the diseases of these organs, and bases his prophylaxis and treatment on the relations between cause and effect, which means, from my viewpoint, the relations between intoxication, from within or without, and the effort of the thyroparathyroid apparatus to destroy the poison.

We have seen that Swale Vincent, in summarizing our knowledge on what he terms the "antitoxic theory," refers to the now-established fact that the purpose of the internal secretion of the thyroid—including that of the parathyroids, I would say—is to prevent poisoning by products of metabolism and also, using his own words, "by infections from without," and that, moreover, thyroidectomized animals show an extreme liability to infective conditions. When to this we add the familiar fact that pregnancy causes enlargement of the thyroid, often sufficient to be detected by palpation and inspection, the evident purpose being to take part at least in the destruction of the excess of wastes and detritus derived from the developing fetus, we must admit that a wide range of action is to be allotted to the thyroparathyroid apparatus.

It was this wide range of action which led me as far back as 1903, in the first edition of my work on the "Internal Secretions," to connect the thyroid secretion with the processes grouped under the term "immunity." I then advanced the view: (1) that the secretion of the thyroid (as one of the component organs of what I termed the adrenal system) was an active factor in the immunizing process; (2) that it took part indirectly in this process by increasing the functional activity of the adrenals and general oxidation and metabolism, and (3) that the resulting increase of functional activity in the organs which produced protective substances correspondingly augmented in the blood the quantity of these substances—then known collectively as Buchner's alexins.

Four years later (1907), these conclusions, including the participation of the thyroid secretion in the general process of immunity, received additional, and what appears to me conclusive, support. Miss Louise Fassin, of the Bacteriological Institute of Liège, summarized a series of investigations in the following words: "The first series of my experiments, in a large number of animals (dogs and rabbits), showed that the subcutaneous injection of thyroid product (fluidextract of the fresh gland) is rapidly followed in the serum by an increase of alexin, a substance discovered by Buchner, generally considered as playing an important rôle in the defense of the body. This increase becomes evident as early as ten minutes after the injection; it becomes accentuated after one hour, and reaches its maximum in twenty-four hours; then the proportion of alexin in the blood recedes more or less rapidly until the normal is reached. The effects of one injection rarely last

less than twenty-four hours or more than two or three days." She also found that the oral administration of thyroid brought about corresponding effects. I may recall, moreover, that as shown by Reid Hunt, an overactive thyroid gives rise to an increase of organic iodine in the blood, and that as far back as 1903¹ I urged that the antitoxic activity of an antitoxic serum coincided with the proportion of thyroiodine it contained.

To control these results as to their direct relationship with the thyroid, Miss Fassin performed complete thyroidectomy in nine animals. One alone, however, survived the operation more than fifteen days; tetany occurred in all, thus showing that the parathyroids had been completely removed. "In all the animals operated on," she writes, "there occurred a marked diminution of the hemolytic and bactericidal alexin."

While this clearly shows an intimate relationship between the thyroid and the general immunizing process, it does not tell us what the excess of thyroparathyroid secretion represents in the blood. Study of this question led me to conclude in 1907 that it was the constituent which Sir A. E. Wright had termed "opsonin" and which before him Denys and Leclef, Bordet, Nolf, and others had identified as "sensitizing substance" or "sensibilisatrice." This view was also confirmed by other investigators. Referring you elsewhere for detailed evidence,² I shall merely submit that Léopold-Lévi and H. de Rothschild, of Paris, write in this connection in the second volume of their work on "Physiopathology of the Thyroid Gland": "Sajous has attributed, among the functions of the thyroid body, a rôle to the latter which he assimilates to that of opsonins and to autoantitoxins. More recently, Miss Fassin, M. Stepanoff, and M. Marbé have confirmed on their side the influence of the thyroid on the blood's asset in alexins and opsonins." Miss Fassin and M. Marbé have done more than this: Since by removing the thyroid body they inhibited the production of opsonins, they also sustained my opinion that the thyroid apparatus is the source of opsonins. Lorand, of Carlsbad, also referring to the confirmation of my views by European investigators, states that this proves further "the intimate relationship between the thyroid and our immunizing functions." Frugoni, moreover, found that thyroid gland markedly raised not only the opsonic index of tuberculous animals, but also the active germicidal power of their blood.

This must suffice to show that the thyroid gland—including always its parathyroids—is intimately connected with the autoprotective or immunizing functions of the body. Such being the case, and knowing that goiter, at least in some of its forms, is due to intoxication from some poison, organic or inorganic, I have also good ground for the belief, in view of the fact that infections, toxic wastes, etc., cause enlargement of the thyroid, that a defensive reaction of that organ accounts for the development of goiter.

While the disease may be the result of prolonged overactivity of the gland, characterized by typical histologic lesions of hyperplasia and

¹ "Internal Secretions and Principles of Medicine," 5th ed., vol. i, p. 762.

² New York Med. Jour., Nov. 11, 1911.

hypertrophy, with symptoms of hyperthyroidism, these lesions may also occur in a gland which is unable, even under violent stimulation, to react adequately to the poison. Driven, nevertheless, to inordinate activity, it undergoes violent congestion, thus causing the development of a relatively rapid form of the disease. A description of this form, which has been termed "acute goiter" because it sometimes appears with relative suddenness—though differing totally from true acute goiter due to local congestion—and also "epidemic goiter" because several cases sometimes appear within a short period, will illustrate the difference between this and another form to be presently described.

In the *hyposecretion goiter*—we will thus term it for the sake of convenience—the growth is soft and diffuse and shows a tendency to grow larger on one side, usually the right. Although it sometimes recedes of its own accord, its tendency is to persist if the cause be not removed, and to undergo colloid, cystic, or other retrogressive changes. It is a pernicious form in the sense that in the child it tends toward the production of cretinism, and in the adult, to the corresponding condition, myxedema. Now, it is here that a careful study of the general symptoms will reveal the true nature of the trouble, the symptoms being quite characteristic, and typically those of a mild form of hypothyroidism. The pulse is slow, ranging from 62 down to 40 or even lower. This bradycardia is witnessed in all cases. There is a marked tendency to hyperidrosis, especially of the extremities, excessive sweating occurring under slight exertion and sometimes even without it. Hypothermia is habitual, though seldom marked. The urea excretion is reduced one-third. There are no pressure phenomena, unless the growth is far advanced—no dyspnea, no dysphagia. Nor are there nervous symptoms such as those that are common to hyperthyroidia and exophthalmic goiter—no tremor, no exophthalmos. Treated in time with thyroid gland and by removal of the cause, if the latter can be located, these cases recover with relative promptness.

Comparing this hyposecretion form with that due to excessive secretory activity, which we shall term *hypersecretion goiter*, we find none of the landmarks just described. Indeed, as soon as any appear other than the goitrous enlargement, they are clearly those of *larval exophthalmic goiter*—a somewhat rapid pulse, so-called "nervousness," with tremor so slight, perhaps, that it is revealed only on careful examination. As a rule, however, and in cases seen sufficiently early, there is simple enlargement of the gland without constitutional symptoms. Its shape is not modified at first, and for a time the swelling can only be discerned by palpation, and perhaps by careful inspection during deep respiration, deglutition, and coughing, which greatly accentuate the up and down motion of the gland. There are no symptoms due to pressure at this stage.

Returning to the hyposecretion goiter, it is the form which, as Kocher states, "is not usually brought to the surgeon for treatment because it can be cured by internal medication." It is the type known here as "parenchymatous goiter." This type, as Adami writes, "would seem to be an overgrowth

of the gland with overactivity, although such overgrowth may eventually give rise to atrophy and inactivity of the specific glandular substance," which means that it also may lead to cretinism in children and myxedema in adults. "It is very suggestive," continues the same author, "that in a large proportion of cases where the goiter is not of too long development and is of the parenchymatous type, the iodine treatment has for long years been found to give good results"—provided, let me add, that the source of intoxication is also removed.

The recognition of the connection of the thyroid—always including the parathyroids—with the defensive mechanism of the body, enables us also to get better results in the treatment of goiter by emphasizing the importance of endogenous intoxication in the causation of the disease. A patient may not do well, as is often the case, under iodine or thyroid gland,—or both combined, the best plan,—even when given early, avoiding strictly all cases showing signs of Graves's disease, but this will soon change if, besides giving these agents, attention is paid to any condition whatsoever: intestinal, hepatic, gastric, renal, etc., capable of provoking auto-intoxication. Concomitant goiter and chlorosis are occasionally witnessed in young girls; the treatment of the coprostasis so common in them will sometimes alone cause the swollen thyroid to recede. Poor or carious teeth,—possibly by hindering mastication,—suppurative foci, briefly any condition capable of producing systemic poisoning, including toxins and endotoxins, must be eliminated. In short, the successful treatment of goiter is not a mere question of thyroid and iodine. Intestinal antiseptics, the salicylates, creosote carbonate, menthol, etc., are also helpful, when intestinal functions have been regulated. This accounts for the success obtained by McCarrison with thymol, his belief being that a special micro-organism was the pathogenic factor in his patients.

The recognition of cases which are amenable to medical treatment is not difficult. Such treatment will prove effective, as a rule, when the gland is diffuse and elastic, *i.e.*, of the parenchymatous type, particularly in adolescents and young adults. In the nodular, cystic, colloid, fibrous, and intrathoracic forms, iodine is seldom of value and sometimes dangerous. I have seen a single drop of tincture of iodine cause marked toxic phenomena in nodular goiter. Yet the fact that the line of demarcation between medical and surgical cases is not always clearly defined warrants a test of the medical treatment,—while closely watching the patient,—a step which sometimes yields unexpected favorable results.

Finally, recognition of the fact that we are dealing with a reaction of an organ having for its function to defend the body against poisoning seems to me to brand goiter as a danger signal which the authorities of countries or districts in which goiter prevails should heed. They rightly quarantine sufferers of contagious diseases; but in many districts they supply water which is a menace to the health and mental development of thousands of children and adults. No water known to be capable of producing goiter should be used by a community. Even the resource of boiling fails here,

since it minimizes, but does not destroy, the pathogenic agent. Moreover, medical school inspectors should look upon an incipient goiter as evidence that the child or adolescent bearing it is being exposed to physical and mental decay through chronic poisoning, and strive to prevent it by calling attention to the need of immediate treatment on modern lines.

THE RELATIONS OF INTERNAL SECRETIONS TO MENTAL CONDITIONS.*

BY PROFESSOR L. v. FRANKL-HOCHWART,

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IN the so-called "formes frustes" of Basedow's disease the exophthalmos is often altogether absent or only suggested. In this group the mental condition is also changed. These are often grumbling, hypochondriac, melancholic, and egotistic persons. In completely developed Basedow's disease one tendency is often pronounced—namely, the predominance of manic features. The individuals are often excited, though one cannot exactly speak of a psychosis. They are talkative, spasmodic in their thoughts and actions, and sometimes incline to witticisms. In conversation they often prefer erotic subjects, and are given to sexual excesses. In the acute psychoses of these patients there may be a predominance of manic features. Opposed to the picture of Basedow's disease, of hypertrophy of the thyroid-gland tissue, is the picture of atrophy and degeneration. Most striking is the condition of the adult myxedematous patients, with the typical absence of the thyroid gland. The principal factor is the complete lack of emotion. A considerable rôle is ascribed to the thyroid gland in emotional life. According to Lévi and Rothschild, it is the "glande de l'émotion." The similarity of the picture of fear emotion and that of Basedow's disease should be remembered: The protuberance of the bulbi, the trembling, the tachycardia, the congestions which alternate with pallor, the outbreaks of perspiration, the diarrheas, and the trembling of the limbs. The myxedematous, according to Charcot, may be compared to hibernating animals: dull-witted, indifferent, unable to work, disinclined to sexual activity; the memory gradually decreases, the power of judgment becomes minimal, and the patients often lie in bed apathetically for days, almost without desire for food or drink. Severe psychoses are by no means rare in these patients. The connection between the mental condition and lack of the thyroid gland may best be studied if thyroidin be administered for therapeutic purposes.

As regards the *parathyroids* the author has described psychoses in individuals who had fallen ill of typical tetany. At the culmination of the affection, which in Vienna appears in March and April, typical tetanic attacks

* Summary of article in the American Journal of the Medical Sciences, August, 1913.

appeared, which subsided with the symptoms of somatic disorder. Similar cases have also been described by other authors, especially cases of a strumipriva or parathyreopriva form. The mood of those afflicted by tetany is not to be designated as normal, even disregarding the actual psychoses. These individuals are excitable, timid, uneasy, quarrelsome, and inclined to outbreaks of temper. Depression is occasionally present, but is not one of the dominant symptoms. In the psychoses the conditions of temper and excitement predominate. The author found among his old patients with tetany several who had grown excitable and irritable. In those who had myxedematous phenomena, symptoms of mental lassitude appeared which were not recognizable in the other forms. In strumectomized animals peculiar psychic changes have been described. Blum mentions hallucinations in strumectomized dogs, as well as changes of characteristics, idiocy, and pathologic motor phenomena. Horsley and Pineles saw similar phenomena in monkeys. Erdheim observed conditions of excitement in rats, and stated that these are connected in some way with tetany, as on the days when the animals are excited tetany often reappears.

Basch and Klosevoigt, referring to the feeble intelligence of animals whose *thymus* had been extirpated, speak of an "idiotie thymopriva."

Hypophyseal affections must be divided into two large groups, acromegalia and the dystrophia adiposogenitalis. Psychoses of various kinds in these conditions have been described. Boyle and Beadles, among 3000 necropsies at the lunatic asylum, found tumors in 20, 6 of them hypophyseal. The number of actual hypophyseal psychoses is somewhat overestimated, but the fact that psychoses are so frequent in affections of the pituitary body gives food for thought, in spite of their association at times with the destruction of tissue in other parts of the brain. The author has seen many cases of pituitary body tumor, and has noticed a psychic change, a peculiar indifference, a certain contentment, a euphoria which is not in harmony with the symptoms, such as headache and blindness. The patients are calm, and have a childish confidence in the doctor. The sleepiness of the patients is pronounced, but if they are forced to arouse themselves, their intelligence has not suffered nearly so much as we would be led to believe by the outward impression they make.

The psychic factor may best be studied by observing operated cases. The author has seen cases operated on by the Schloffer (cases of v. Eiselsberg and Hochenegg) or the nasal method of Hirsch. It is remarkable how lively, agile, and communicative the patients become. The entire psychic condition of the corpulent person partakes of that of individuals with constitutional obesity. The peculiar mental slowness, indecision, good nature, and sleepiness of these people is proverbial. Loss of hair is not uncommon.

It is not uninteresting to compare the acromegalic with the physiologic giants. They often have a peculiar heavy manner and lack of initiative. The psychic peculiarity of hypophysis patients, which the author described in a report at the International Congress at Budapest in 1909, is of interest from the fact that the animal experiments of Cushing, in Baltimore, and Aschner,

in Vienna, showed that in hypophysectomized dogs the psychic changes corresponded with those of human beings. According to Cushing, animals with hypopituitarism become psychically abnormal: at times they are lazy and sleepy, then playful and excited.

If in early childhood tumors (teratoma) develop in the *pineal gland* a picture is presented which is more intelligible since the observations of Gutzeit, Ogle, Oesterreich, Slavik, Neumann, Marburg, Bailey, and Jelliffe. The features of premature sexual development are combined with an unusual development of fat. In a boy aged $4\frac{1}{2}$ years who had always been very large and somewhat fat, the genitals developed remarkably. In his fifth year erections appeared, the voice became deep and hoarse, and the body showed a hirsute appearance which corresponded to the age of 18 or 20 years. He had the symptoms of a cerebral tumor (headache, vomiting, epileptic attacks, paralysis of the eye muscles, and choked disc). He died of scarlatina. The necropsy findings showed a teratoma of the pineal gland. One point in this observation is of importance, the early development of the mental condition. The boy was overintelligent, and had an inclination to discuss ethical philosophic questions. In his fifth year he showed the same psychic peculiarities that are displayed by youths during puberty.

There were also signs of early psychic development in the cases of Oesterreich and Slavik and Raymond and Claude. The hypothesis therefore was that the pineal gland was to be considered among the blood glands, and that it influenced genital development. Its absence causes premature genital development and psychic development corresponding to the age of puberty. Descartes placed the seat of the soul in the pineal gland, and although in this form his belief cannot be upheld, still when a genius has once made an assertion, something of it will always remain.

Of the abdominal glands the *pancreas* and its internal secretion play a large part in relation to diabetes. Diabetics often show mood anomalies, and we speak of actual diabetic psychoses. We have no test for determining how far the psychic peculiarities depend on the secretory disturbances of the pancreas.

The study of *suprarenal capsule* affections gives us more positive points of knowledge. The secretion of these organs and their effect on the nervous system are generally known. The connection between disturbances of brain development and hypoplasias of the suprarenal capsules, is of importance in the subject under discussion. Leri in 3 cases of melancholia found destruction of the suprarenal capsules. At the clinic there are occasional cases of Addison's disease with a tuberculous destruction of the organs mentioned. These individuals are weak, exhausted, and hopeless, in contrast to the euphoric patients with tuberculosis of the lungs. Irritability and depression are almost always present. Psychoses of various kinds have also been observed, depression seemingly predominating.

THE INTERNAL SECRETIONS IN RELATION TO DERMATOLOGY.*

By SIR MALCOLM MORRIS, K.C.V.O.,

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It is probable, though the evidence is not conclusive, resting upon purely clinical grounds, that in irregular functioning of the thyroid is to be found in many cases, though not necessarily in all, the explanation of cutaneous changes similar to those met with in myxedema. In this disease the skin is cold, dry, and rough, seldom or never perspires, and may take on a yellowish tint; it presents swellings, and the mucous membranes also may be swollen. There is a bright red flush in the malar region, due to dilatation of capillaries and veins. Swale Vincent has found that the elements of the connective tissue of the derma are torn asunder, while the fibers are the seat of a hyperplastic process, and the cell nuclei and the fibrils of the gelatinous substance between the fat lobules are multiplied. The skin as a whole looks transparent, as though saturated with a semifluid substance. The hair of the scalp becomes scanty; the pubic and axillary hair, with the eyelashes and eyebrows, often falls out; in many cases the teeth are brittle and carious. As these signs disappear under the administration of thyroid preparations, there is *prima facie* ground for expecting benefit from the same treatment in conditions presenting more or less resemblance to them, but not associated with myxedema, such as psoriasis, alopecia, ichthyosis, and xeroderma. That expectation has been abundantly justified by experience. So often, indeed, has the author during the last two years found the use of thyroid extract followed by improvement in these and other conditions, that he now makes it a routine practice, in examining patients suffering from chronic skin affections of which the cause is not known, to palpate the thyroid. If the gland be smaller than usual, a trial of thyroid extract is suggested; if there be marked hypertrophy, thyroid medication is contraindicated. It has, however, to be remembered that thyroid insufficiency may be due not to atrophy of the gland, but to replacement of the vesicular substance by interstitial growth. Moreover, it is probable that thyroid hypertrophy is sometimes compensatory rather than morbid, the result of an effort to restore secretory equilibrium that has been disturbed by failure of some other ductless gland. Cases are recorded in which thyroid treatment has abolished cutaneous symptoms associated with thyroid excess; such cases are examples of what French authors designate *l'instabilité thyroïdienne*. It is necessary, therefore, to be on one's guard against hastily concluding that a moderate degree of thyroid hyperplasia is an indication against the use of thyroid extract.

In no skin affection has thyroid medication given better results than in *psoriasis*. Recent experience has led the author to the conclusion that one of the secrets of success consists in selecting cases in which the skin

* Summary of article in the British Medical Journal, May 17, 1913.

affection complicates other conditions in which thyroid is indicated. In obesity; in infantile wasting; in a certain type of chronic rheumatism, both articular and muscular; in osteomalacia, rickets, and delayed union of fractured bones, in hemophilia, etc., thyroid preparations are of proved utility, and whenever cutaneous affections are found associated with such conditions as these there is a presumption in favor of thyroid treatment. Thus the author has found thyroid extract specially efficacious in psoriasis associated with adiposity. Léopold-Lévi and de Rothschild report cases of psoriasis associated with chronic rheumatism in which the psoriasis completely disappeared under thyroid treatment. In psoriasis generally, the author's experience is that the treatment is more suitable for chronic than for acute cases, and he agrees with Radcliffe Crocker and with Sajous that thyroid extract should not be exhibited until the eruption is fully developed. The effect produced consists not only in lessening or abolishing the irritation, but also, it would seem, in stimulating the epidermal layers, so that the degenerate epidermis scales off and is replaced by healthy epidermis.

Obstinate cases of *pruritus* have proved amenable to thyroid. In *eczema* the author reports encouraging results. Unlike psoriasis, this affection responds to it not only in chronic, but also in acute, forms. The most responsive cases are those in fat subjects, and those, again, in which the eczema is associated with xerodermia. Léopold-Lévi and de Rothschild record 3 cases of eczema associated with thyroid symptoms which were cured or ameliorated by thyroid treatment. Marbé reports 2 cases of eczema cured by thyroid. Eason and the author successfully treated cases of eczema in young children with thyroid. Moussous has found the treatment to answer well in seborrheic eczema of the scalp.

In *ichthyosis* the author has used thyroid in a number of cases, and in none without benefit. Grünfeld and de Kornfeld have found thyroid treatment beneficial in *sclerodermia*, even when associated with Graves's disease. Léopold-Lévi and de Rothschild explain this result by the suggestion that Graves's disease and sclerodermia sometimes evolve upon a *terrain* of thyroid insufficiency. Of 9 cases of sclerodermia which they themselves submitted to thyroid medication, the treatment was finally successful in 5, but it had to be perseveringly applied. C. J. White has reported great improvement from thyroid treatment in a case of *acanthosis nigricans*. In the author's experience, thyroid has been distinctly useful in *keloid*, and he has been especially struck by its influence in alleviating the pain which is not infrequently a symptom.

Multiple warts, possibly an error of development, the author has repeatedly found to disappear under thyroid medication. *Acne vulgaris* is another affection of childhood or adolescence which responds well to thyroid extract. In one case, that of a boy of 16 who had overgrown his strength, after a month's treatment the acne was considerably less, while the accompanying seborrhea of the face and scalp had entirely cleared up, and the general health had much improved. Thyroid treatment is obviously indicated

in *acne rosacea* occurring as a result of flushing in what, for lack of a better designation, may be termed the *pseudomyxedema* sometimes associated with the menopause in fat women, who become dull, lethargic, and depressed. In such cases the adiposity, mental symptoms, and rosacea alike respond to the treatment. A remarkable case of cure of *rhinophyma*, after three months' thyroid treatment, has been reported by Dyer. Both in *lupus vulgaris* and in tuberculosis of the skin (*scrofuloderma*), the author is able to report favorably of the thyroid treatment.

In *exophthalmic goiter*, generally held to be due to excessive or perverted functioning of the thyroid, the cutaneous symptoms are the reverse of those met with in myxedema: instead of coldness, dryness, and scaliness there are heat and moisture; pigmentary changes are not infrequent, and there may also be pruritus, factitious urticaria, and purpuric erythema; but in both conditions there may be loss of hair and atrophy of the nails. In Graves's disease thyroid treatment is, of course, contraindicated; but there are cases on record in which cutaneous symptoms associated with some degree of overaction of the thyroid have been benefited by the judicious administration of thyroid extract.

The influence of the thyroid gland upon the growth of hair is unmistakable. Hertoghe records a case of entire baldness in myxedema, followed by complete restoration of hair after the use of thyroid. On the other hand, in cases of thyroid excess there is sometimes hypertrichosis. With thyroid excess, spontaneous or due to medication, there may be growth of hair on the face in women, or black hairs appear in the light-colored beards of men. Return to the normal color, under thyroid treatment, has occurred in cases of premature grayness. Examples of the effect of thyroid treatment upon the growth and color of the hair in such affections as chronic rheumatism, scleroderma, neurasthenia, migraine, and asthma, associated with various degrees of thyroid irregularity, are reported by Léopold-Lévi and de Rothschild. There is reason to believe that the pituitary and the adrenals take part in the trichogenic function, and it has long been known that the growth of hair is influenced, directly or indirectly, by the sexual glands. Léopold-Lévi and de Rothschild incline to the view that the thyroid chiefly influences the hair of the scalp, and the sexual glands, the pubic and axillary hair, and the beard.

Both in myxedema and in Graves's disease, and also in the intermediate degrees of thyroid disorder, the nails, as well as the teeth, undergo degenerative changes. Cases in which thyroid treatment exerted a favorable trophic influence upon the nails are recorded by Léopold-Lévi and de Rothschild. The new part of the nail, nearer the matrix, became normal in color and thickness and texture, and, as is observed in convalescence from some acute affections, there was a furrow between the old part and the new. There can be little doubt that the coloration of the skin is influenced by several of the internal secretions, and also, it may be, by the liver and the abdominal sympathetic. It is significant that, as Rolleston has noted, the pigmentation in Addison's disease is an exaggeration of the normal, and

occurs, therefore, on the face, the neck, the hands, the anterior folds of the axillæ, the nipples, the perineum, and the genitals, while in more advanced cases the mucous membranes may become pigmented. There is pigmentation also in hyperpituitarism, but it is often accompanied with asthenia and low blood-pressure, which suggests that it may be due to adrenal insufficiency rather than to excessive functioning of the pituitary. The familiar pigimentary signs of pregnancy suggest that the sexual secretions may be concerned in normal coloration. There is evidence also that the thyroid is not without influence in this process. One of the signs of myxedema is the yellowish tint which the skin may present, and Lancereaux and Paulesco, and others, have found that abnormal pigmentation is beneficially affected by thyroid treatment. In *leucoderma* favorable results from thyroid treatment are recorded, but the negative results recorded by other authors suggest that a careful selection of cases is necessary. The treatment appears to answer best in diffused cases. Indications are not wanting that the rôle of the thyroid in coloration is of a regulative character. Arbuthnot Lane has described the pronounced pigmentation met with in cases of alimentary toxemia, beginning in the eyelids and thence spreading gradually over the face. The neck becomes first brown and then almost chocolate-colored. The skin of the abdomen, the thighs, the axillæ, and that covering the spinous processes of the vertebræ grows progressively darker, and on these surfaces areas of a still darker staining may develop. This observer also calls attention to the changes the thyroid undergoes in cases of intestinal toxemia. In one case, in which the patient had for eight years suffered from an enlarged thyroid, it was obvious a few days after resection of the large intestine that the gland was diminishing in size, and by the time she left the hospital it was but little larger than usual. The case does not stand alone, for he had noticed the complete disappearance of symptoms of thyroid excess in other patients after operation for intestinal stasis. Such cases suggest that the thyroid may hypertrophy in its effort to antagonize the intestinal toxins to which in these cases the abnormal pigmentation is probably due. Possibly it is in this way that the effect of thyroid medication in improving the complexion is to be explained. So powerful an agent as thyroid extract must be used with caution and its effects closely watched. As a rule, the author begins with a $2\frac{1}{2}$ -grain tablet, to be taken at bedtime, and after a few days doubles the dose; then, if the remedy be well borne, a tablet of the same strength is taken, in addition, after breakfast, and, later, another after dinner, and so gradually a maximum of 10 grains per diem is attained. For infants he begins with $\frac{1}{4}$ grain a day, increased to $\frac{1}{2}$ grain, and occasionally to 1 grain. On the appearance of rapid pulse, nausea, headache, lumbar pain, and restlessness, the treatment must be at once suspended or the dosage diminished. In cases treated with thyroid in which arsenic would be used, as in psoriasis, the author usually employs the two agents together. The thyroid is so often and so greatly affected in acromegaly, and the pituitary in myxedema and after experimental thyroidectomy, as to suggest not merely a complementary relation between these glands when either is the subject of disease, but even

some measure of normal interaction—a suggestion which finds support in their histologic resemblances. In acromegaly there is increase in the size of the hair follicles and of the papillæ, and, as the result of enlargement and abnormal activity of the secretory glands, the skin becomes moist and greasy. There is also hyperplasia of the connective tissue of the subcutis, which may involve the muscles, and while the process of hyperpituitarism is active there is an unusual degree of hypertrichosis. The transition from hyperpituitarism to hypophyseal insufficiency is attended by a very slow but unmistakable retrogression of the cutaneous symptoms. Just as the condition of the skin in Graves's disease is the exact reverse of that in myxedema, so in primary hypopituitarism the cutaneous changes are the opposite of those in acromegaly. Cushing found that in all his patients affected with primary hypopituitarism, except the older ones, the skin was "smooth, transparent, and notably free from moisture." In some it had an infantile smoothness, such as might suggest a subcutaneous edema, though there was no pitting on pressure.

In connection with the pituitary the author refers also to the rapid growth of the long bones which often follows typhoid and other infections in young adolescents, and which comes under the notice of the dermatologist because of the patellar and other striæ produced by the tension to which the skin is subjected. In one of his own cases—that of a girl of 15 who had had scarlet fever—there were linear streaks on the thighs, abdomen, and breast, suggesting a general skeletal overgrowth. Chanal has suggested that the skeletal overdevelopment is due to bacillary stimulation of the epiphyses, but the author agrees with Cushing that it is more likely to be the result of a functional hyperactivity of the pituitary. In view of the relation subsisting between the thymus gland and the sexual system, it is possible that to irregularity in the functioning of this gland may be due some affections of the skin that occur specially in childhood and adolescence. There is now reason for believing that the thymus continues to function regularly until puberty, and it has been found that in castrated animals the gland does not at puberty undergo hypoplasia. Although its secretion has not been definitely isolated, there is much to be said for the view that the thymus furnishes secretion which is of service to the economy while the reproductive organs are undergoing development. Some cases of acne, therefore, may possibly be due to insufficiency or excess of its secretion. Similarly there appears to be some connection, as Sabouraud has suggested, between large and active sebaceous glands and overactivity of the testicle; this may account for the frequency of seborrhea in virile and hairy men and its rarity in women, who, when the subjects of it, are generally of the masculine type. It is significant that acne in women often coincides with the menstrual periods.

Neither thymus nor pituitary nor suprarenal preparations have yet been extensively used in dermatology. But the author has employed thymus gland extract with advantage in *acne* associated with enlarged thyroid and rapid heart, and has had encouraging results from pituitary gland extract, and also from suprarenal extract, in *persistent urticaria* and *angioneurotic edema*, con-

ditions in which French authors report improvement under thyroid treatment. He has also found benefit to follow the use of suprarenal extract in *lupus erythematosus*, possibly owing to its influence upon the vasomotor centers. This condition is amenable to radium and carbonic acid snow; but it is not a merely local affection, and when the lesions disappear under local treatment there is always a possibility of recurrence. It is desirable, therefore, that further trial be given to any agent which holds out the promise of beneficially affecting the constitutional condition.

The facts that animals from which the hypophysis has been partially removed betray diminished power of resistance to infections, and that pituitary hyperplasia has been found associated with bacterial intoxications, may possibly prove to be charged with significance. It is conceivable that irregularity of this or other organs of internal secretion may be the direct cause of certain obscure skin diseases, and that in others it may induce the predisposing condition which is the opportunity of bacterial or other pathologic influences. Thus, too, may possibly be explained the tendency of so many skin affections to recur after the lesions have disappeared under empiric treatment.

THE TREATMENT OF GOITER.*

By CHARLES H. MAYO, M.D.,

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THE administration of iodine both internally and externally is one of the oldest forms of medical treatment for goiter, but even now, after the enormous amount of study which has been made of the relationship of the iodine content of the thyroid in relation to the symptoms of Graves's disease by Baumann, Marine, Hunt, Smith and others, the administration of the drug is still far from being on a scientific basis.

As a preparation for thyroidectomy in severe cases of hyperthyroidism, rest treatment to quiet the heart improves active symptoms. The use of the Röntgen ray will sometimes cause temporary amelioration of the more severe symptoms, and in the still more serious cases of this type the injection of 1, 2 or 3 drams of boiling water (Porter's method) into a lobe of the gland acts favorably in improving the condition of the patient.

From results so far obtained it seems indicated that the vessels and at times a portion of the gland should be ligated in certain cases: (1) In those patients suffering from mild symptoms of hyperthyroidism which are hardly severe enough to warrant a thyroidectomy; (2) in that large group having acute, severe exophthalmic goiters, and the chronic and very sick patients who, having exhausted all forms of treatment, are now suffering from various secondary symptoms, and (3) in cases of marked pulsation and thrill of

* Summary of article in Northwest Medicine, December, 1913.

the thyroid arteries associated with dilatation of the heart and loss of weight. Great improvement follows the ligation in these cases and later thyroidectomy is advised, since there may be a relapse to the former condition. Should the condition recur before a partial thyroidectomy is made, or should a severe relapse occur after partial extirpation, the inferior thyroid artery should be ligated and half the remaining lobe removed when improvement occurs. In surgical operations on exophthalmic goiters the mortality at present varies from 1 to 3 per cent. The causes of death are acute hyperthyroidism, embolism, pneumonia, hemorrhage, sepsis, etc.

The treatment of toxic non-exophthalmic goiter (Plummer) is, in the mild or early stages, practically the same as that of simple goiter. In its severe or advanced stages the mortality is as high or higher than that of exophthalmic goiter of similar severity and stage of symptoms. The term "simple" goiter should be dropped and the term "atoxic" substituted as covering the majority of the cases, while those cases which present any toxic symptoms should be described as "toxic non-exophthalmic." The operative treatment for the uncomplicated, non-toxic thyroid is approximately the same as that for the simpler types of exophthalmic goiter, section of the muscles not often being required, however. Operations on adenomas, colloid thyroids, or diffuse adenomatoses, as a rule, involve but slight risk to the life of the individual. Many patients who are so afflicted wish to be relieved of the deformity, tracheal pressure, hoarseness, or possibly of a severe neuralgia.

Intrathoracic goiters and deep substernal goiters are of serious import and are found about once in 40 operations for simple goiter. Slight substernal projections are much more frequent. The diagnosis rests on (1) dull area on percussion; (2) the röntgenogram, and (3) evidences of substernal pressure. Probably one-sixth of the original gland-cells are competent to furnish all secretion necessary. It is best, therefore, to preserve this much of the gland until there is more evidence furnished that all of it can be removed with no ill effects, as is claimed by some surgeons in their treatment of exophthalmic goiter. Less than 1 per cent. of the cases operated on in the Mayo clinic show malignancy. Both cancer and sarcoma occur, the former with much greater frequency. The diagnosis should, if possible, be made before the growth has penetrated the capsule and involved the neighboring structures, *e.g.*, the trachea and muscles. The only treatment affording any hope of relief is removal of the entire thyroid tissue. Unfortunately early glandular and lung metastases are common. When recurrence takes place the process is more rapid than before operation.

THE CLINICAL AND PATHOLOGIC RELATIONSHIP OF SIMPLE AND EXOPHTHALMIC GOITER.*

By H. S. PLUMMER, M.D.,

ROCHESTER, MINN.

A CONSIDERABLE percentage of cases of so-called simple goiter show constitutional symptoms. Wilson, in 1908, after reviewing the available pathologic material from the cases that had been diagnosed exophthalmic goiter at the Mayo clinic, pointed out that only 80 per cent. of the glands showed hyperplastic changes. Recently the cases of goiter under observation have been classified pathologically as (1) hyperplastic and (2) non-hyperplastic, and clinically as (1) hyperplastic toxic, (2) hyperplastic atoxic, (3) non-hyperplastic toxic, and (4) non-hyperplastic atoxic. The glands showing marked hypertrophy were included with the hyperplastic goiters. Following this classification for the 2917 new cases coming to operation between January 1, 1909, and January 1, 1913, 42.8 per cent. were hyperplastic and 57.2 per cent. non-hyperplastic. Of the hyperplastics 99.2 per cent. were toxic and 0.8 per cent. atoxic. Of the non-hyperplastic 23.3 per cent. were toxic and 76.7 per cent. atoxic. Patients coming under observation with non-hyperplastic toxic goiter gave a history of having first noted the goiter at the average age of 22 years, and the evidence of intoxication at the average of 36.5 years. The corresponding ages for hyperplastic goiter were respectively 32 and 32.9 years. These differences alone were sufficient to show that at least two distinct pathologic and clinical groups were being dealt with. Should all toxic hyperplastic goiters be included under the term exophthalmic goiter? From his statistical studies the author concludes that it is quite possible that exophthalmos may be associated with non-hyperplastic toxic goiter, but, if so, this is so rare that it must be in a way considered accidental. Is the symptom-complex accompanying hyperplastic goiter to be directly attributed to disturbed thyroid function? That such is the case is indicated by the fact that an individual aged 22 years with an adenoma of the thyroid has a definite chance of developing a train of symptoms during the thirty-sixth year so similar to the symptom-complex associated with hyperplastic thyroid that the best-trained diagnosticians are constantly confusing the two conditions. Can one associate the symptom-complex of non-hyperplastic toxic goiter with any definite pathologic change in the thyroid? For the present this question must be answered in the negative.

On the whole, one may safely conclude that exophthalmic goiter is a definite clinical complex always associated with hyperplasia of the thyroid, and that it should be sharply distinguished from the constitutional state or states that may develop with non-hyperplastic goiter. The intoxications from

* Summary of article in the American Journal of the Medical Sciences, December, 1913.

non-hyperplastic goiter may be divided into two merging groups: (1) a group in which the cardiac toxin predominates and in which the clinical picture closely resembles, and in many instances cannot be differentiated from, the cardiovascular complex resulting from alcoholic, luetic, septic, and other well-known toxins; (2) a group more closely approaching the picture of Graves's disease and including the cases that have been erroneously so diagnosed by the mass of the profession. The average lapse of time between the appearance of non-hyperplastic goiter and toxic symptoms is 14.3 years. That the patient comes under observation three years later indicates that the onset is usually insidious. Nervousness, tremor, loss of strength and weight, as a rule, develop slowly, but may appear suddenly long before definite evidence of myocardial damage. Administration of iodine may cause the sudden appearance of these symptoms with myocardial insufficiency, much as they might follow the prolonged drinking bout of an old toper who had not previously shown decided evidence of chronic alcoholism. In some cases the clinical aspect closely approaches that of exophthalmic goiter. However, the symptoms are less complex, less definitely associated, and, except for a damaged heart, less intense. There is much evidence to suggest that during the 14.3 years previous to the onset of definite toxic symptoms many of the cases of non-hyperplastic thyroid may be compared to the alcoholic tippler in that if the soil is right they develop arteriosclerosis, in many cases showing the combined picture of thyrotoxicosis and arteriosclerosis. The development of a typical syndrome of Graves's disease in a case having a definite history of simple goiter means that a hyperplastic goiter has been superimposed upon the simple type.

The onset of exophthalmic goiter is, as a rule, relatively acute and the course of the disease fairly definite. The clinical picture early in the history is that of a toxin acting directly on the more vital organs, more notably the central nervous and vascular systems. Later it is made more complex by the interaction of those organs whose functions have been directly disturbed by the toxin. The order of onset of the most important symptoms, based on the average of the Mayo clinic series, is: (1) cerebral stimulation; (2) vasomotor disturbances of the skin; (3) tremor; (4) mental irritability; (5) tachycardia; (6) loss of strength; (7) cardiac insufficiency; (8) exophthalmos; (9) diarrhea; (10) vomiting; (11) mental depression; (12) jaundice, and (13) death. If the average course of the intoxication be represented by a curve the greatest height is reached during the latter half of the first year, and then suddenly drops to the twelfth month. In many instances it reaches the normal base-line during the next six months. More often it fluctuates with periods of exacerbation for the next two to four years. Secondary symptoms and exophthalmos may remain, but the active course only rarely continues over four years without distinct intermissions. One may note the striking resemblance of the character, order of onset, and course of this train of symptoms with that resulting from the heavy use of alcohol by a susceptible individual over a corresponding period of time. Near the crest of the curve any shock, operation, etc., that treats the patient to another drink may

result in tremens or death. In the average course after the first year the symptoms that may be attributed to long-continued intoxication rather than to a high degree of acute intoxication, *i.e.*, those from the more chronic types of heart, liver, and degeneration of the kidney, enter strikingly into the clinical picture. In attempting to construct a composite curve we find that the curves for those symptoms that we can readily attribute to a high degree of immediate intoxication from the thyroid gradually drop while the curves for those findings attributable to a long-continued intoxication of a lower degree gradually rise.

There is much evidence to suggest that the sudden onset of the toxic symptoms is preceded by a period during which the patient is gradually habituated to the disturbed function of a developing hyperplastic thyroid, and that following the disappearance of the clinical manifestations of the intoxication, the patient is still taking care of the products of an overactive gland; if this overactivity, with or without clinical manifestations, continues sufficiently long in an individual prone to arterial degeneration, arteriosclerosis with secondary contracted kidneys, high arterial tension, etc., will ultimately develop. The picture of thyrotoxicosis from both hyperplastic and non-hyperplastic goiters may be compared to that from alcoholism in its various degrees and manifestations, varying with the dose, length of administration, and susceptibility of the individual.

HOW FAR HAVE WE GOT WITH THE CLINICAL USE OF THE INTERNAL SECRETIONS ?*

By WILLIAM N. BERKELEY, A.B., PH.B., M.D.,

NEW YORK, N. Y.

THYROID medication has not received the attention it merits in the treatment of thyroid enlargement in young girls just past puberty. In these patients a parenchymatous enlargement often develops by reason of the great metabolic demand upon the resources of the thyroid during rapid growth. Small doses of thyroid gland twice a day in such cases have a remarkable effect in reducing the struma to normal size. Thyroid gland, on the other hand, is strongly contraindicated in Graves's disease. In pathologic obesity, the behavior of thyroid is extremely uncertain. The use of thyroid has been recommended in the case of children who are beginning to suffer from adenoids. In early cases and in doses carefully adjusted to each case it appears to make good, but after the condition has progressed to the point of mouth-breathing, resort should be had to the surgeon. One should be sure to get a reliable preparation of the gland. The market is full of uncertain and dangerous makes, which are neither standardized nor fresh.

* Summary of article in the Old Dominion Journal of Medicine and Surgery, May, 1913.

Parathyroid.—In paralysis agitans parathyroid treatment has latterly become almost coextensive with medical knowledge of the disease itself, and the results have been increasingly favorable. Of the patients who have used a preparation made after the author's formula about 80 per cent. have been benefited, and 60 per cent. have been greatly and permanently improved. In any real case of tetany—postoperative, infantile, gastric, or other—parathyroid is a rational and helpful remedy. It should not be expected to have any effect in organic nervous disease where the characteristic spastic position of the fingers and toes is temporary and accidental.

Testis.—This is a valuable remedy after surgical removal of the testes, in double tuberculous orchitis, in atrophy of the testes, in functional impotence, and in certain cases of excessive obesity in elderly men developing after their sexual powers have failed. There are some cases of arrested development in large boys where testis supplies a chemical deficiency in the organism. When boys of 18 or 20 years, of fair mentality, have a childish voice, no pubic hair, and no sexual desire nor erectile power, testis is indicated and often gives a very fair measure of success. The use of this remedy should be much more extensive than is now the case.

Pituitary.—The posterior part of the pituitary is made up of nerve tissue and has no concern for us, but the *pars anterior* and *pars intermedia* are both secretory. In the author's opinion the popular commercial extracts of pituitary, derived from the raw gland by high degrees of heat and the use of strong acids, do not represent the real gland. Such extracts may perhaps have the clinical effects claimed for them, but it is highly unlikely that the normal pituitary secretes any such substances in its normal state. As the author has not satisfied himself as to the differences between the fore- and mid- gland, he usually prescribes the entire gland. This he finds to be of specific value in arrested physical growth when this condition is encountered without complications. The value of the remedy was first impressed upon him by the case of a boy of 17 years who had the voice and stature of a child of 9. The boy was well advanced in his classes, intelligent, a monitor at school, and of gracious and pleasing manners, but was in despair because of his size. Since he began taking pituitary "entire," he has slowly begun to grow, and is now some $3\frac{3}{4}$ inches taller than a year ago, with a stronger voice, a fresh growth of pubic hair, and a little down on his upper lip. He has never felt so active and well as since he began the remedy. Several other cases have behaved in the same way. Theoretically one could produce acromegaly by giving pituitary for an indefinite period, but this patient is so far growing normally.

In the curious and rare condition of excessive obesity and genital atrophy (*hypopituitarism*) described by Harvey Cushing and others, pituitary gland (*pars anterior*) is indicated specifically. There seems ground to think that pituitary is also indicated in osteomalacia, in defective ossification generally, and in ununited fractures. It is certainly contraindicated in acromegaly.

Thymus.—Clinically, there can no longer be much question that, when

properly prepared, thymus is of the greatest value in many cases of arthritis deformans. The author knows of a dozen or more recent cases where the good effect has been gradual but permanent. Pain and swelling (*not* the bony deformities) have disappeared, and the patient recovered his appetite and courage and returned to work. The nucleoproteid extract is very much better for these cases than the crude gland. A course of treatment should cover several months, and small doses should be continued for some time after apparent clinical cure.

Ovary.—The author uses only corpus luteum, as it seems quite certain this is the only part of the ovary that secretes internally. He gives it in the toxemias of pregnancy, in excessive obesity in women after the climacteric, in the nervous disturbances appearing with the approach of the climacteric, and after total excision of the ovaries. In treating early and mild cases of Graves's disease in virgins, he likes to begin with corpus luteum. Abundant experience has shown it to be a useful antidote to thyroid toxins circulating in excess in the blood.

When menstruation is painful and deficient in young wives who have been curetted properly and still fail to conceive, giving corpus luteum may assist in the conversion of the uterine mucosa into a normal decidua. Such a procedure may cure a certain percentage of the cases of female sterility; it is certainly worthy of a fair tryout.

Mammary Gland.—The administration of mammary gland will certainly correct many menstrual irregularities of various kinds—flooding, amenorrhea, pain. Tumors of the ovary, probably simple cysts, sometimes disappear under the action of mammary gland.

Adrenals.—The numerous commercial adrenal "extracts," useful as they are in many ways, should rather be called derivatives of the adrenal gland. They are prepared by chemical methods which must certainly destroy the sensitive proteids of the fresh gland. It is very improbable that a single one of them exists as such in the organism. To get the real physiologic effect of the suprarenal gland, either the entire gland must be given or the nucleoproteid or globulin extract. If this plan had been followed in the past, the author has no doubt that the lives of many sufferers from Addison's disease might have been saved.

Adrenal gland given for a few weeks has a curious stimulant effect upon the sympathetic. The pupils may become unequal from stimulation of the dilator fibers, the light reflex disappear, and the patient may fear—or his doctor for him—that locomotor ataxia is developing. It is possibly this effect that makes the gland of value in certain cases of paroxysmal vomiting of a chronically recurrent character where no organic disease of the stomach can be discovered. A certain neurologist believes adrenal to be of the greatest value in certain cases of idiopathic epilepsy, and has reported some recent cases in which there seems no doubt that the drug was of marked efficiency.

Pineal Gland.—The pineal gland appears to have a definite and important function—that of promoting the development of the human nervous system.

How it so acts can only be surmised at present, but presumably the gland supplies a minute amount of intracellular ferment accelerating the growth of the gray matter of the brain. In metabolic experiments upon young animals Dana and the author were able only to hasten somatic development, but when giving it to defective children they found that in most cases where there was no grave organic defect of the brain, the mentality showed a steady and gratifying improvement lasting over the whole period of administration. It has also occurred to the author that pineal gland will arrest or retard many cases of premature senile decay of the mental faculties. He has had encouraging success so far in this direction.

Abstracts from Current Literature on the Internal Secretions

Relationship of the Thyroid Gland to Alimentary Toxemia.—Evidence is accumulating to show that, among the many functions of the thyroid gland, one of the most important is a protective action against circulating toxins. Complete removal of the thyroid leads not only to myxedema, but also, as is well known, brings with it a considerable risk from a rapidly fatal toxemia, an important manifestation of which is the symptom-complex known as tetany. On very good grounds tetany is thought by many to be produced by toxins generated in the alimentary canal. It occurs in gastric dilatation where stagnation is great, and disappears if the stomach can be washed out; moreover, in such cases a substance has been isolated from the gastric contents by Bouveret and Devic which, when injected into animals, has reproduced the clinical picture of tetany. The author has described a series of cases where the same syndrome accompanied dilatation of the colon and was only relieved by colonic lavation. Tetany is most frequent in rickety children in whom some degree of atony and dilatation of the stomach and intestines is common, and is almost invariably preceded by an unhealthy condition of the stools. It seems a reasonable inference that the thyroid gland, among its antitoxic functions, includes that of combating poisons absorbed from the intestinal tract. Lane, Rowell, and Carson have all seen ileosigmoidostomy followed by shrinking of a goiter.

Another clinical link in the chain of evidence is afforded by rheumatoid arthritis, a disease not uncommonly accompanied by enlargement of the thyroid gland, by Graves's disease, and by tetany or a condition of the hands and feet closely resembling it, and which is also regarded by many as an effect of oral sepsis or intestinal intoxication. Rheumatoid arthritis is occasionally distinctly benefited by the administration of thyroid extract.

Farrant, studying the effects of various types of clinical toxemia upon the thyroid gland, found signs of hyperplasia and increased functioning, amounting in some cases to the changes found in Graves's disease. This held true for such diverse toxemias as those of infantile diarrhea, diphtheria, measles and bronchopneumonia, and whooping-cough and bronchopneumonia. A similar hyperplasia was caused in guinea-pigs by the injection of diphtheria toxin, but was mitigated if thyroid was given at the same time.

Equally conclusive inferences are to be drawn from the researches of R. McCarrison, who has shown beyond dispute that thyroid enlargement can be produced experimentally in man, within a few weeks, by the administration of suspended matter separated by filtration from goiter-producing waters, and can be cured by thymol. He has also caused goiters to dwindle or disappear by using vaccines prepared from different organisms. The good results thus obtained led the author to try a similar method of treatment. The vaccines generally employed were prepared from the coliform bacilli of the patient's own bowel. The bacterial growth was obtained from the feces by culturing on Musgrave's medium, which consists of beef extract, 0.5 Gm.; sodium chloride, 0.5 Gm.; agar, 20 Gm.; tap water, 1000 c.c., and is of an alkalinity of minus 1. This gives a growth of coliform bacilli of fairly constant character. The initial dose was usually 125,000,000 of the dead organisms, suspended in about 1 c.c. of saline. Subsequently, if the goiter showed signs of diminishing, the dose was increased weekly by 25,000,000 or 30,000,000. As a rule, the injections were given at weekly intervals.

In the few cases so far treated, 8 in all, the results have been very encouraging. In one case the goiter disappeared entirely, and in all the others it diminished. As a rule, after the first injection the tumor becomes softer, and after subsequent doses gradually gets smaller, although occasionally periods of quiescence supervene.

Another effect was that, by producing absorption of the parenchymatous enlargement, adenomata previously undetected became obvious, and operative treatment was thus facilitated. F. Langmead (Lancet, May 17, 1913).

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Exophthalmic Goiter and Frommel's Disease.—Frommel in 1882 wrote concerning the possibility that in many women, at the close of lactation, the uterus might undergo involution to so marked a degree that *restitutio ad integrum* could not subsequently take place. Since that time Frommel's disease has been the term applied to a condition characterized by atrophy of the uterus and prolonged lactation, and in which the latter appears as the sole cause of the atrophy. The author of the present paper reports a case in which the retrogressive change in the uterus was explainable either by galactorrhea and prolonged lactation or by an attack of hyperthyroidism which passed into Graves's disease at the menopause. The patient's pregnancy, at the age of 24, had been pre-

ceded by "nervous attacks" and followed, after the child had been nursed for seventeen months, by gradual diminution of the menstrual flow, atrophy of the uterus, and sterility. During the same period of gestation and lactation, marked swelling took place in the neck. The menopause supervened at the age of 48, and at 55 the typical symptoms and signs of exophthalmic goiter were present.

It is now well known that utero-ovarian atrophy may be a result of Graves's disease; likewise, that amenorrhea is frequent in the latter disease, which, on the contrary, begins to retrogress when the periods reappear. This has led Pinard to suspect a close relationship between exophthalmic goiter and ovulation. Ovulation and menstruation being almost always synergistic and correlated processes, Graves's disease may be said to contribute, with prolonged lactation, to uteroannexal sclerosis in certain cases. The thyroid enlargement presented by the author's case tends to show that no antagonism exists between the mammary and thyroid functions, and Bramwell has pointed out that an increase in the mammary secretion may be noted in wet-nurses subjected to thyroid organotherapy. In fact, the relationship between the thyroid and the mammaræ is so close that in one case Djemil Pacha saw a myxedematous state follow the excision of hypertrophied mammary glands.

On the whole, Frommel's disease, according to the author, is an interesting illustration of the physiologic antagonism existing between certain glands which excite the cortex and vagus (ovaries, pancreas, etc.) and others which excite the sympathetic (thyroid, mammaræ, etc.); whence the conclusion that, in nervous women with a tendency to excessive sympathetic functions, the child is not unalterably entitled to his mother's milk. To such patients especially should apply Frommel's own advice to keep a most careful watch over the condition of the reproductive apparatus, and where abnormally marked retrogressive changes in the uterus appear, to discontinue lactation at once. Maurice (*Lyon médical*, August 24, 1913).

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Pituitary Röntgenograms.—The author reviews the known facts in regard to diseases of the hypophysis and their diagnosis, with special reference to the X-ray findings. Describing the normal variations seen in the form and dimensions of the sella turcica, he states that its normal limits are 15 mm. in the anteroposterior diameter and 10 mm. in the vertical. It is necessary, however, to take into consideration the other internal secretory glands, especially the sexual organs. While castration is known to cause enlargement, this is opposed to the non-enlargement in the so-called "eunuchoid type," in spite of the many resemblances of the latter groups to true eunuchs. In pregnancy, increase of the sella has been observed, and it is not infrequent in old multiparæ. The condition of the thyroid also must be considered, as enlargement of the sella turcica can be demonstrated in many cases of myxedema. The two commonest varieties—the short and rather deep, and the long and

rather flat types of sella—seem to be dependent in some way on the shape of the skull (Schüller); the first was found as a rule in the brachycephalics and the other in the bradycephalics. According to Fitzgerald, the size of the sella always corresponds to the length of the posterior portion of the base of the skull, but it is in indirect proportion to the distance from its anterior wall to the ethmoidal spine. The size of the sphenoidal cells also seems to have some relation. Of course, the X-ray does not show the gland itself, and important conclusions in regard to its disorders can only be deduced from the changes in the bony parts, enlargements and thinnings. The order of appearance of the changes in the sella turcica and its parts, as shown by Erdheim and Schüller, is quite different in cases of tumor of the gland itself from that when an external tumor is pressing upon it. In the former case there is enlargement and thinning from within, and in the latter from without. But in advanced cases it may be difficult to make a differential diagnosis. Intracranial pressure due to tumors having no topographic relation whatever to the gland may also sometimes cause changes. Thus with tumors of the acusticus changes have been observed in the sella—a rather characteristic forward inclination and thinning of the dorsum sellæ—which aid in their diagnosis, especially when occurring with the enlargement of the meatus acusticus described by Henschen. Luger (*Journal of the American Medical Association*, September 6, 1913).

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Examination of the Ductless Glands in Eight Cases of Dementia Precox.—The studies of the authors were prompted by the view that in dementia precox one has to do with a state or states of autointoxication. While this view is not uniformly held, there is reason to believe, notwithstanding, that it best explains the clinical findings. The fact that dementia precox begins in the years when developmental changes are greatest—the years of puberty and adolescence—is extremely suggestive. During this period extraordinary demands are made upon the vitality of the organism.

In the authors' paper 8 autopsies are reported in detail. A notable point in the ductless gland findings was the underweight of the thyroid in 7 of the 8 cases. In addition, 3 of them showed abnormalities, quantitative and qualitative, in the colloid of this organ, and 4, decided regressive changes in the acinar epithelial cells. The parathyroid findings could not be regarded as of significance. This applied also to the parotid and thymus. The most constant feature in the adrenal picture was the small amount of fat in the cells of the cortex of this organ, especially those of the fasciculata. If this is to be regarded as indicative of functional change it indicates lessened activity. In the hypophysis there was less colloid than is usually found in a series of these glands, but so little is known regarding the morphologic attributes of function in this body that this, as well as the number of eosinophile cells, could

hardly be regarded as pathologic. Without attempting an interpretation of the histologic conditions the authors consider themselves at least justified in the conclusion that in their cases there was in all probability a disturbance of what Sajous has called the "adrenal system"—*i.e.*, of the chain made up of the pituitary, the thyroid, and the adrenals. Especially was change noted, *e.g.*, striking departures in weight, in the thyroid and adrenals. F. X. Dercum and A. G. Ellis (Journal of Nervous and Mental Disease, February, 1913).

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Pituitary Medication in Intestinal Motor Inactivity.—Pituitary preparations constitute, according to the authors, the most active agent known for inducing intestinal contractions. They employ an extract each cubic centimeter of which contains the active principles of 0.2 Gm. of fresh posterior lobe of the pituitary from the ox. Subcutaneous injection of 1 c.c. is quite painless. With 2 c.c., defecation will frequently follow after the lapse of one or two hours, but 3 c.c. is the standard dose for adults, and will cause an evacuation in 88 per cent. of cases in from six to twenty minutes—occasionally only after an hour. The series of cases in which the effect of pituitary was tested numbered 200. Doses larger than 3 c.c. fail to produce a more marked effect, and, on the other hand, induce painful bowel contractions and unpleasant general symptoms, such as pallor, tachycardia, and vomiting. With the 3 c.c. dose, pain was never marked, except in one case already suffering from colitis. The constipation, overcome by the use of the drug, nearly always returns. Frequently, however, a single injection will induce several stools on the same day and keep the bowels regular for a day or two after.

Pituitary extract may be administered to establish a distinction between paralytic and mechanical ileus, though in the latter case danger may be entailed if the intestine is diseased and there is an absolute obstruction to the passage of fecal material. In surgery and obstetrics an injection of pituitary extract is an excellent prophylactic and curative measure for postoperative intestinal paresis, as the authors had occasion to observe in 11 cases. Besides, the action of the drug on the circulation is a favorable one, and its diuretic effect aids in the elimination of toxins. Continued for a time, pituitary medication seems to exert a tonic effect on the intestine, and it simultaneously stimulates gastric motility. To obtain a lasting effect from the pituitary preparation, $\frac{1}{2}$ c.c. should be given intramuscularly every day for a week, then 1 c.c. every three days for another week, and then $1\frac{1}{2}$ c.c. once a week as long as the treatment is kept up. Pituitary treatment is, from theoretic considerations, probably contraindicated: (1) In cases of ulceration or gangrene of the intestine where there is a possibility of the gut yielding to unusual tension; (2) in circumscribed peritoneal inflammations, where extension of the disease process must be avoided, and (3) in acute or spasmodic affections of the intestine, because of the pain that might follow. B. A. Houssay and J. Beruti (Presse médicale, July 26, 1913).

A Case of Hypernephroma.—Report of a case of precocious development of the external genitalia due to hypernephroma in a girl of 7 years. She had begun to show a growth of pubic hair at one year, and developed bodily very early. At the age of 7 there was a profuse growth of hair on the pubis, in the axillæ, on the chin and the upper lip. The skin of the abdomen and legs was rough and there was acne of the face, but without pigmentation. She was mentally precocious, and remarkably strong. Her voice was coarse and deep. She was affectionate, played with dolls, but preferred to give rather than receive caresses. At the age mentioned an abdominal tumor was found in the right hypochondriac region, without enlargement of the superficial lymph glands. The clitoris was an inch long, half an inch in diameter, and notched on the under surface, suggesting hypospadias. At operation an enormous perivascular and adherent hypernephroma of the right kidney was removed, with death three hours after operation. The tumor occupied nearly the entire abdominal cavity. The uterus and ovaries were infantile. The left kidney and adrenal appeared normal. The lungs showed a moderate degree of metastasis. Microscopic examination of the tumor showed hypernephroma, with much tissue of the type of the adrenal cortex. No right adrenal body was found.

Reviewing other cases previously reported, one of the authors notes that, of these 18 cases, 14 were girls. One can differentiate these cases from true sexual precocity in girls by the presence in the latter condition of menstruation, enlargement of breasts, and retention of female characters, and from similar conditions in boys by the development of the penis and testes. All of the 18 cases died before the sixteenth year. With the syndrome presented by the case reported there is presumptive evidence of hypernephroma of the adrenal cortex. Exploratory operation should be done early, even before a tumor is palpable; with a tumor present, removal is imperative. H. D. Jump, Henry Beates, Jr., and W. Wayne Babcock (*Pediatrics*, July, 1913).

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Pituitary Extract in Puerperal Eclampsia.—Report of 2 cases of puerperal eclampsia in which the use of pituitary extract was followed by successful results. Case I was aged 42; V-para; the seizures began at 1 A.M. When seen the patient was comatose and cyanotic. Gestation had reached term, but there were no pains. The os was closed. The urine showed albumin, 5 per cent. There was sodium chloride retention. The patient received 1.19 c.c. of hypophysis extract and 0.02 Gm. of pantopon. The convulsions, which had been continuous from the first, ceased within a half-hour. At 4 A.M. she became conscious, and the os was found to admit a finger. A second injection of hypophysis extract was then given. At 6 A.M. a healthy child was expelled, and the placenta followed in five minutes. The mother completely recovered, but showed a trace of albumin in the urine for months.

Case II was aged 23; II-para. She was in the sixth month of

gestation. Convulsions set in at 11 P.M. She became unconscious and attacks of convulsions were incessant. The face was swollen and the legs edematous. Pulse 140, small. Anuria. The os was closed. Digitalis and diuretin given by mouth were vomited. Pituitary extract and pantopon were injected in same quantities as in first case, and the convulsions ceased within three-fourths of an hour. At 2 A.M. the os admitted a finger. Diuresis reappeared, the urine containing an abundance of albumin. A second injection of pituitary extract was given. At 4 A.M. a six months' fetus was expelled alive, the placenta immediately following. The fetus survived fifteen minutes. The patient recovered fully in eight days, and the last traces of albumin disappeared in four weeks. Schlossberger (Medical Record, from *Deutsche medizinische Wochenschrift*, May 29, 1913).

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Röntgen-ray Treatment in Thymic Asthma.—Two infants, respectively five and ten months old, with thymic asthma were successfully treated with the X-rays by the author. In the first case the symptoms had appeared in the third, and in the second case in the tenth, month as a sequel to bronchopneumonia. There were loud stridor in breathing and prolonged coughing spells with asphyxial manifestations. During inspiration the clavicle receded, while in expiration it was projected forward, and the upper portion of the thymus gland could then be felt. There was dullness above the sternum, the lymphatic glands throughout the body appeared to be enlarged, the spleen was plainly palpable, and the tonsils were hypertrophied. The first child was admitted at the clinic three times and received in all 42 X-ray treatments. In the second case 32 treatments in succession were given, but with gradually decreasing dosage, so that dermatitis at no time resulted. Both children were relieved of their asthma, the area of dullness above the sternum became distinctly smaller, and, with an X-ray examination, contraction of the thymus gland could likewise be observed. In the first case the stridor also completely disappeared; in the second it was merely considerably reduced, the lymphatic and splenic enlargements, as well as the other abnormalities referable to the lymphatics, remaining unchanged. The author considers thymectomy indicated only in severe cases that threaten life. In the other more favorable cases, with asthma and stridor, recovery should generally be induced by prolonged X-ray treatment, at first daily, with moderate dosage. Children of lymphatic habit should be kept under observation, and if signs of a latent thymic enlargement are noticed, treated prophylactically with the X-rays. Luzzati (*Rivista ospedaliera*, August 31, 1913; *Zentralblatt für Chirurgie*, December 20, 1913).

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Alopecia Areata and the Reproductive Functions.—The author presents a comprehensive study of the etiology of alopecia areata which leads him to conclude that there exists a more or less intimate and obvious relationship between genital disturbances and this disorder. In the

female sex there is a form of alopecia that follows the menopause and even a prolonged suppression of the menses. Such alopecia may be either mild or severe. This disease may also follow oöphorectomy, and here again the prognosis is variable. In less frequent instances alopecia appears, usually in a mild form, in the course of several consecutive pregnancies. In one case alopecia was observed to appear in a man suffering at about the same time from bilateral tuberculosis of the testicles, and became complete and permanent even before double orchidectomy had been practised. R. Sabouraud (*Annales de dermatologie et de syphiligraphie*, February, 1913).

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Organotherapy in a Case of Acromegaly With Psychic Disturbances.

—The author presented a patient admitted to an institution three times for attacks of melancholic depression. Unmistakable signs of acromegaly were present, but neither radiography nor examination of the ocular fundus showed a tumor of the hypophysis. Organotherapy having been taken up, all the symptoms became considerably worse while the patient took pituitary extract, whereas the administration of a thyroid preparation instead coincided with disappearance of the headache, dizziness, and vomiting, and an improvement in the mental state. Renewed pituitary treatment caused all these symptoms to reappear, after which they yielded again to thyroid treatment. Salomon (*Société clinique de Médecine mentale*, Paris; *Presse médicale*, December 13, 1913).

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Adrenal Gumma.—The authors report a unique case in which a large gumma was found in the center of the right suprarenal at autopsy. The left suprarenal showed compensatory hypertrophy. The patient was a man 43 years of age treated with salvarsan for recently acquired syphilis. Four months and a half later a "stroke" took place, followed by symptoms suggestive of the nervous syndrome described in 1902 by Babinski and Nageotte. Death took place two months after the attack. On post-mortem examination there were found softening of the upper portion of the right lobe of the cerebellum, the adrenal gumma, and fibrous nodules in the kidneys. There was no trace of tuberculosis. Inoculation of guinea-pigs with the adrenal gumma showed absence of tuberculous infection in this organ. L. Bériel, P. Durand, and E. Malespine (*Lyon médical*, December 7, 1913).

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Researches Concerning the Hypophysis.—Study of the ontogenesis of the hypophysis demonstrates the necessity of revising the nomenclature applied to it. The following classification of the several parts of the organ is advanced by the author: 1. The pars neuralis, consisting of (a) the eminentia sacularis of the tuber cinereum; (b) the infundibulum; (c) the infundibular process. 2. The pars glandularis (epithelial), consisting of (a) the pars tuberalis (hitherto undescribed); (b) the pars infundibularis; (c) the pars distalis. Frederick Tilney (*Journal of the American Medical Association*, January 3, 1914).

Department on General Medicine

Original Article

ORTHOTHERAPY: NORMALITY OF POSTURE AS A FACTOR IN HEALTH.*

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PHILADELPHIA, PA.

POSTULATE.—The maintenance of typical or “orthograde” attitudes, and also the correction of abnormalities in posture, exert important effects on the human organism in and out of health. A study of the factors involved affords a solution to many problems of vital conservation and clinical medicine.

Homo sapiens, chief of the primates, might well assume for his motto, “*Per ardua ad astra*.” In the process of attaining the erect attitude and reaching his present conformation he has passed through many phases of structural evolution.

Today there are—and at all times there have been—many urgent problems of morphologic adaptation and compensation. Men of the Neanderthal type constituted, in all probability, only one among many groups of highly specialized primates.

The *Pithecanthropus erectus* (a by no means impossible figure) serves as a prototype of emergence from the rabble of partly erect creatures to the fully upright man of recorded history.

The opposable thumb, with its limitless potentialities, lifted the group distinguished by increasing erectness far onward toward the commanding position of the efficient, versatile human being of today.

No great advance is ever made except by meeting and overcoming correspondingly great difficulties, perils, and limitations. Attainment of the fully erect attitude has come about through the elimination of many physical faults, weaknesses, and functional imperfections, from which, however, we, the descendants, have by no means yet been wholly emancipated.

It is the purpose of this communication to glance at the evidence as to: (1) The disadvantages still obtaining in the radical change from the primal “all-four,” or quadrupedal, to the erect attitude; (2) to what extent it is advantageous to utilize primitive attitudes in conserving functional efficiency, and (3) how to determine the best means of conserving our uniquely special-

* Read at the Fourteenth Annual Meeting of the American Therapeutic Society, held in Washington, D. C., May 5 and 6, 1913.

ized conformation, our acquired or artificial postures, while pursuing the economies of vegetative life in achieving efficiency, force, and grace in the arts, industries, plays, and other steps in environmental selection.

Man is the one animal maintaining habitually the upright attitude. This "orthograde" posture being contrary to type, some of his parts are subjected to strains, more or less constant, in the process of adjustment to such a reversal of original conformation. Many modifications of structure and interrelationship have come about in achieving compensation and adaptation to a posture different from that of his ancestors.

Man being the only animal capable of employing to advantage radical modifications of primitive postures, the need arises constantly of assuming wide diversities of attitude for varying periods of time. Civilization, with its complex conditions, makes many demands, real or fancied, which compel wide departures from primal postures in seeking relief from strain, fatigue, or in meeting artificial exigencies. Industries compel the adoption of various attitudes, some of which are consonant with primitive postures, and hence afford temporary return to type. When variants from typical attitudes are maintained too long, there follows greater or less impairment or damage in function, structure, or both.

It may be assumed that these acquired postures, or adaptations to exigencies, should be modified in several directions. Among these modifications and their uses are:—

1. In maintaining balance, poise, and tissue-tone.
2. In developing various parts, and training them to their fullest efficiency.
3. By returning from time to time to primal attitudes,—all-four movements, ventrodecubitus, and the like,—some measure of tone is regained in structures vitiated by excessive or unnatural strains; compressions, passive or active.

The more nearly a human being adheres to the primal or typical or "orthograde" postures, the better does the organism sustain functional integrity, and the more economically are its mechanical activities performed. Posture variations are often permissible, however, and of value in many directions in achieving temporarily functional and industrial efficiency, as well as force and grace of movement. The more promptly an individual returns to the orthograde posture after a departure from it, the more are the factors of vital rhythm, ebb and flow of fluids, respiration, and oxygenation encouraged and economized.

II.

The normal or orthograde posture, as defined by Scanes-Spicer,¹ is "that in which the center of gravity is directly over the center of the base of support. A vertical plumb-line joining these two points bisects the median transverse occipitocondyloid axis, also the intercotyloid axis, passing

¹ R. H. Scanes-Spicer, *British Medical Journal*, December 19, 1910; also, *Medical Press and Circular*, February 9, 1910.

through the center of gravity made up of the trunk and upper limbs. Man stands on one end of his longitudinal axis, with his center of gravity poised high over a small base of support.

"These two points are distanced as much as possible from each other by the fullest possible extension of the vertical axis in which the above points lie. In any movement of the body, or part of the body, there is a relative displacement of the center of gravity, which necessitates an increment of work to maintain the erect or orthograde posture."

Thereupon results a straight back, a raised and expanded thorax, well distanced from the pelvis, and a flat abdomen. This posture is the one for maximum respiratory efficiency.

While the key to the normal upright posture is (ontogenetically and morphologically) the position of the pelvis, practically and kinesthetically it lies in the action of the thorax.

In brief, the ideal standing position depends on the thoracic structures. How this can be reacquired when perverted, and why it should be, will be presented in detail later. Suffice it to state here that the ideal human standing position—the graceful, efficient body-poise—depends on the thoracic uplift, and that this involves a balanced, unconscious tension in the whole skeletal entity, a normal tonus in all supporting structures, bony, muscular, tendinous, and ligamentous,—a passive tension of the abdominal walls, maintaining the correlations of the viscera, and hence also of circulatory and hydrostatic equilibrium.

III.

In the interests of best functionation, the head should be held high-poised. This is not compromised by moderate changes in its attitude, provided the base be not unduly altered, except for brief periods. Any continuous sagging of the thorax is followed by less or more compression of the contained and correlated viscera, and impairment of the vital processes is induced.

Next in importance is tonus or passive tension in the erector spinæ muscles. Should these relax, the diaphragm is lowered and its rhythmic pumping action lessened: regular suction is not maintained; tidal air is decreased; the portal venous system suffers as well as the systemic veins and lymphatics, and all hydrostatic actions are impeded.

Nutritive balance, neuronie poise, cerebral efficiency, all depend on these postural factors. Failure to keep the diaphragmatic suction-pump at work is followed immediately by less or more waterlogging of tissues, a dimming of the visceral "lamps of life," which should be kept always brightly burning. No conscious effort is needed when once normal respiratory habits are acquired. Inasmuch as every individual tends to carelessness, to omit vigilance, and hence to fall into disability, it is necessary that exogenous stimuli be applied from time to time, or the organism suffers.

The propulsive (centrifugal) action of the diaphragm is not optional, but compulsory. The integrity of the pump-like heart action is not more

essential to life than the bellows-action of the diaphragm, which is the main agent in emptying the portal venous system, the systemic veins, and the lymphatics, as well as necessary for the indrawing of tidal air. The vertebro-thoracic structures, the diaphragm, and the powerful muscles of the spine constitute the primary mechanism of oxygenation. At the same time, these mechanical agents, acting with the abdominal muscles, exert a constant elastic pull which maintains the viscera and hydrostatic mechanisms in their normal interrelationships and aids in their action, included in which is the promotion of the ebb and flow of fluids. The downward movement of the diaphragm (centripetal action) must be followed promptly by an uppull, or all the tides of the body rest. Any prolongation of the rest-period invites stagnation and waterlogging of tissues. Hence it is plain that thoracic competence and full action of the thorax and diaphragm are essential to the maintenance of vital processes.

IV.

The body is frequently compared to a machine of exceptional delicacy and efficiency. Far beyond the resources of a machine the body possesses powers for growth, development, repair, and adjustment; it is also capable of modifications in response to environment, favorable or unfavorable. The possessor is tempted to rely upon these resources and omit the exercise of that care and watchfulness which would be promptly bestowed upon an engine or a domestic animal. In consequence of this deplorable indifference to our largest asset, the body is perpetually falling into derangement and disrepair, physicians being occupied mainly in effecting repairs, and but rarely encouraged to act as conservators of health.

The first and most obvious principle in conserving the efficiency of a machine is to make sure that all parts are so adjusted as to secure nicest, most exact and economic action; next, so to direct moving forces that all parts shall be and remain in best adjustment. Then follow manifold and diverse factors concerned in achieving the best possible development of inherent capabilities.

The normal body is a marvel of compactness and economic adjustments. Structural symmetry contributes much to maintenance of efficiency, and even to the prolongation of life. As a man or woman grows old, increasing defects of bodily carriage and poise become evident and are deplorable from both esthetic and hygienic standpoints. Deformities caused by posture and costume likewise impair health in many directions. Postural peculiarities, present in every individual to varying degrees, are too often regarded as mere matters of course, as distinguishing characteristics, and dismissed as of no moment. A conspicuous stoop, a lateral twist, a sagging waist, high shoulders or hollow chest, bent knees, and like assymetries are looked upon as merely evidences of bad taste, or as the fingermarks of fate. They are often deliberately perpetuated, even exaggerated in portraits, and too frequently imitated. A grave significance is added when it is realized that these departures from normal attitudes are in truth exaggerations of developmental faults. They induce degenerative changes in nerve-centers

or conduction-paths, morbid slackness in tissues, impaired nutrition in important structures, compressions of blood-vessels and nerves, all tending to produce vitiations in vital structures.

It is generally assumed—erroneously—that such degenerative alterations merely foreshadow advancing age and are inevitable. Changes in shape and symmetry not seldom begin in early childhood and are often obvious in adolescents, or young adults, inducing in them deformities similar in kind, but less in degree, than in older folk. Nevertheless, among some fortunate persons of great age they are practically absent. These exceptional individuals are usually possessed of extraordinary vigor or stamina.

V.

The foregoing statements tend to demonstrate that this apparently insignificant matter of correct posture warrants scientific attention. It may be urged that certain individuals of advancing years, or even great age, are met, with well-marked attitude deformities, who yet enjoy excellent physical and mental health. Young folk are also occasionally met, of awkward shape and slouching carriage, who excel in some active field sports, exhibiting excellent and varied physical capabilities. These also are rare. Attitude peculiarities, again, are oftentimes merely affectations varying with fashions, and are to be explained by the tendency to follow absurd and unnatural standards.

Admitting that a goodly array of instances can be cited of young or old persons defective in features ordinarily regarded as marks of efficiency, yet capable of using their co-ordinate powers exceptionally well, these individuals would nonetheless be the better for correction of their defects. If these persons had possessed full, accurate command of their motor machinery and had been specifically trained to act in accordance with the best postural and motor standards, they would have become vastly better animals. Let us use as a familiar instance the race-horse, to show why special care and training are required to produce the best results. A thoroughbred colt, the product of generations of selective care in breeding and training to run or trot to the utmost of speed and style, yet requires months and years of laborious special exercises to reach his individual maximum.

VI.

To show why faulty postures actually do cause hurtful conditions it is necessary to recall that *the machinery of organic life is dependent for fullest efficiency upon normal relationships of component parts one to another.* Familiarity with the merest outlines of physiology will make it plain that one set of tissues should bear ontogenetic and exact relationships to others. It is difficult to realize how the human organism can continue to live and enjoy even moderate vigor if its divinely ordered mechanisms are thrown markedly out of adjustment, mechanically or chemically; even more is this true if they be structurally changed by compression. While the power of human endurance and recuperation is incalculable, nonetheless a little thing may go

wrong, or a totally unforeseen exigency arise, and the breath of life departs in an instant: All the more reason why every effort should be made to give nature full opportunity to work on unhindered lines, and reach relative morphologic perfection.

VII.

Let me cite illustrative instances to show the hurtfulness of faulty posture. The attitude of children in schools is now receiving a late, but well-merited attention. Relative positions of the chair and desk, if correct, save the organs of sense, *e.g.*, the eye. If they be faulty, the eye is caused to suffer derangements or dangers, many of them irreparable. The destructive effects are due not so much to mere nearness, remoteness, or special angle of the object seen, the character of the text, and position of the light; organic integrity is influenced even more by the cramped position of the little bodies, inducing *interferences with vascular and sympathetic nerve-structures which sustain the blood-supply to the eye as well as by long-maintained, irregular pressure on the major blood-vessels and nerves*, thus altering the special nutrition of delicate organs and interfering not only with local function, but with full development.

It should be recognized that prolonged sitting at a desk, even in the most correct postures, produces much damage in the growing structures of the thorax, in the bones and ligaments, and in the back and limbs. Following upon this occurs a series of changes in the circulatory organs, by which the brain and governing centers are injured more or less. The fact is well established that children subjected too early to school restraints and compelled to do work in advance of their years, fail to acquire so complete a mental development as those who begin their studies later, when better equipped structurally by specialization through spontaneous activities and unhindered compensation and adaptation.

Take a casual view of a group of school children who have not been taught or encouraged by good systems of free exercises, and it will be patent that already they have begun to acquire posture deformities. This is more obvious in girls than boys, because boys follow moral impulses to free activities and self-developmental measures, such as robust games.

Observe a group of adolescents,—youths at college, or girls on the verge of womanhood. The critical although unskilled eye will note many faults of poise, of gait, and incorrect positions of the head, back, or limbs. The trained eye can point out (especially if the concealing clothes are removed) many serious defects hitherto unnoted. Some of these may be modified later by improved methods of life. Lateral spinal curves often disappear under favorable conditions. Far oftener, however, they become permanent. The moderately distorting effects begun by school confinement become obvious when later emphasized by laborious occupations.

VIII.

Let us review the desirable features: A straight back is a good index of physical efficiency. By this is meant a backbone with no lateral, and

little more anteroposterior curving than is normal for a child of 10 years. This observation is palpable enough and will be appreciated in certain of its applications, notably the military attitude taught (well or ill) since earliest recorded times. Other things being equal, the straight, well-set-up back is to be found chiefly in those subjected to careful training in wholesome, symmetrical activities. In proportion as individuals habitually maintain or return to correct attitudes do they retain vigor, elasticity, correct poise, and motor efficiency.

Next to straightness of the back, it is desirable to preserve elasticity and tone in trunk, muscles, and ligaments. Next in importance is the (nearly) horizontal position of the pelvis (30 degrees—Goldthwait); and next, the proper carriage of the neck and superimposed head. The whole constitutes the normal, well-poised attitude essential to health, vigor, and full activity.

The effects produced, and maintained, by a (nearly) straight back are as follows: If the backbone is nearly vertical the ribs must become more or less horizontal; hence they open up, fan-like, and the thorax thus becomes more capacious. This can be demonstrated by anyone standing with the back to a wall and striving to obliterate the lumbar and nuchal curves, *i.e.*, to flatten the hollows in the back and neck.

IX.

Normality of posture is essential to organic competence. Erectness is a composite of vertical and horizontal lines from which divers other lines depend. While curving lines contribute to grace, they tend to impair powers of support. The weaker the person, the greater the curves exhibited. Weakness is conditional upon exaggeration of dependent lines which gives evidence of incompetence in supporting structures. These supporting structures may be at fault, both at origin and periphery. A tendon may become weak, or the muscle, or both, lose tone and relax. When a group of muscles grows weak at origin or insertion, deformities occur. If these weakened structures support organs, then will they cease to maintain normal interrelationships to other structures. The visceroptosis arise in central defects which can and should be radically corrected by enhancing the vital index through attention to all inherent fountains of force. A secondary cause is loss of integrity in those agencies exercising support supplied by external and collateral structures. Where these are voluntary muscles their vigor must be enhanced by all means, among the most definite of which is suitable use by exercise.

The key to the erect or orthograde posture, and hence to skeletal efficiency, to proper visceral interrelationships, and, thus, to an important factor in health, lies in the maintenance of a normal attitude of the thorax. This assumes the maintenance of a (relatively) straight backbone and horizontality of the ribs. When the ribs remain relatively horizontal and are easily held well up to their normal levels, there is afforded adequate support to the diaphragm, to the external and internal abdominal muscles, and to all those

structures that combine to provide visceral support. There is thus effected a surprising degree of improvement in organic competence.

X.

Relief of disabilities through readjustment of skeletal structures is of recognized efficacy, though not adequately appreciated. Treatment by orthotherapy should begin by graded measures for achieving elasticity of the muscles, ligaments, and other supporting structures. These tend to lose mobility from divers causes, inducing first structure changes, and later posture deformities. Loss of tissue-elasticity bears directly upon respiratory, circulatory, and nutritive competence; also indirectly upon all grosser and some finer functions. Organic adjustments are as necessary to competency as freedom from undue or prolonged pressure to the hollow and tubular structures.

By restitution of thoracic competence alone so much is added to well-being as to justify confidence in respiratory education.² This consists of graded exercises, designed to reinstate lost or impaired function in structures directly concerned in the primary acts of oxygen intake and appropriation.

In the domain of cardiopathies, especially where organic lesions are so far advanced as to become disabling, my experience has convinced me of the value of this measure. Likewise in respiropathies, except where structural disintegration has advanced too far, is the field of applicability large, in addition to whatever else science and experience have demonstrated to be of use.

XI.

Every infective process leaves a stain on cellular integrity, producing functional limitations of one sort or another which rarely, perhaps never, wholly disappear. On every occasion when an individual is damaged by disease, whether through toxic agencies arising from without or within; from errors of conduct, physical or mental; from accidents, traumata, there follows a lowering of the vital index, marked or slight, which may or may not spontaneously disappear. Among the higher duties of the medical man is not merely that of helping the patient through acute exigencies, nor even of restoring the organism to former planes of efficiency; he must supply something more, viz., he should utilize every occasion afforded to teach improved methods of conduct, so that hitherto unused resources shall be made available. The individual can and should be raised to a higher level of efficiency.

² As a graphic demonstration of the efficacy of this one orthotherapeutic principle, we may cite the practice of the Hindu Yogis. It is well known that this large group of people attain a highly desirable degree of vigor and resistance to disease by pursuing this one measure alone. The constant practice of the "complete breath" does, in and by itself, bring about marvels of reconstruction not only in the domain of physical, but also in that of mental, processes. The results claimed may appear excessive, even fanciful, to those unaware of the facts, yet the evidence is concrete and convincing.

Mobilization of joints and muscles, liberation of adhesions and contractures, relaxation of overtension, removal of abnormal compressions on tubular structures,—all these are of fundamental importance, making for nutritive enhancement and limiting the formation of cadaveric, putrefactive, and other toxics. Not only this, but mobilization of the paravertebral structures (where they have become rigid) exerts a valuable effect on vasomotor competence, by permitting freer circulation in the spinal outlets.

There is no doubt in my mind that training the elasticity of the backbone does render signal service to circulatory activity. The effect is to enhance vasomotor efficiency. Indeed, we have here a branch of treatment, *kinesiotherapy*, worthy of thorough clinical research. Rigidity is by no means only a phenomenon of aging structures, though it is most conspicuous in senility. Among young children it is frequently exhibited, and too often overlooked. In the whole group of contractures following spinal cord disease, cerebral palsies, and descending atrophies, there is plain evidence of rigidity, contractures, and spasticity. This feature is too frequently obscure, and is only to be revealed by careful observation and testing.

XII.

In his daily work the clinician meets constant evidence of impairment in the tonicity of muscles and of elastic and supporting structures. This is a highly significant condition and should never be neglected. Often enough it induces a secondary atony, or flaccidity, resulting in phases of invalidism manifested by mental asthenia and physical depression, especially in the circulatory, digestive and eliminatory domains, which must be reckoned with. Otherwise, it is impossible to secure full repair.

Here orthotherapy, achieving skeletal, and hence also organic, readjustments, accomplishes much more than any other remedial agency. Even as an auxiliary treatment it is unsurpassed.

Perhaps the most graphic, urgent and often puzzling disabilities due to loss of mobility have to do with sensory distresses which are then caused. It is not enough to locate the seat of pain, to determine the structures at fault, or to work out a pathologic explanation of the sensory phenomena manifested. Drugs employed to mitigate pain cannot reach the source of trouble. To achieve radical cure involves forming a broader conception of the type and degree of functional disrepair, and evaluating the kind and quality of damage in collateral or correlated organs or structures, all of which demand physiologic encouragement or compensation.

XIII.

Biologically, man's upright attitude places many of his parts at an anatomic disadvantage. Especially is this true of the abdominal organs, hollow or tubular structures containing varying amounts of burdensome fluids. These drag downward upon the relatively feeble supports. Hence it is important that they should be emptied promptly and completely, if integrity,

both functional and structural, is to be insured. Loss of functional integrity may not be followed at once by noticeable disorders, but it constitutes chronic disability which bears heavily upon the patient's well-being. When this stasis in the splanchnic circulation is protracted, there follows a complex group of effects impairing the integrity of the self-regulative and protective forces, inviting damage, expediting the devastations of infectious agents, and also lowering mental and moral balance.

So long as the supporting structures maintain their tone, all goes well. If tonicity is lost, engorgement occurs, especially in the lower quadrants, and waste materials are retained which should move out freely. All this leads to supersaturation with toxic waste-products, till the resulting condition resembles that of a bit of wood long immersed in dirty water. When tissue-tone is impaired in the relatively feeble supporting structures, the back sags and bends to compensate for the heavy down-drag, the ribs and chest fall in, the abdominal muscles are weakened and overstrained, and the hollow organs are compressed. Not only do all the viscera, solid or hollow, lose their nicety of adjustment (so essential for functional alertness), but a general hypoplasia follows.

Neglect of these acquired defects leads to disorders throughout the domains of nutrition, neuronc action, etc., the result being damaged organs, among which, notably, are those of the respiratory, genitourinary, and reproductive systems. Whenever an infective process occurs, even of mild degree, an excess of exudation takes place, followed by restricting bands of organized lymph, adhesions, and fibrosities. Splanchnic engorgement leads to vascular degeneration at the fountain-source of vital activity. Indeed, this "water-logging" of the lower abdominal organs constitutes the key to an enormous number of morbid states, and is too often not appreciated.

Relief measures are simple enough, and when regularly applied not seldom suffice to remove a number of disabilities previously puzzling and obstinate.

XIV.

Let me give a few brief hints concerning the manner in which the process of securing correct posture should be begun:—

By the simple device of clasping the hands behind, pulling apart strongly and pushing the arms forcefully down, at the same time thrusting up the chin vertically, the contractured tissues—those of the chest in particular—are forcibly stretched; perhaps for the first time in years. This act, repeated with steady increments of force, widens the front and base of the thorax, educates the downpull of the erector spinæ muscles, and overcomes the common and damaging habit of stooping. Stooping always causes undue compression of the viscera.

By this procedure I have frequently been able to rid patients of limitations caused by adherent pleuræ; to improve the power and sonorousness of the voice; to restore, in a measure, chronically impaired hearing; to relieve many of the evil effects of chronic heart disease, and to mitigate asthmatic or other morbid states. The increased respiratory capacity induced

also makes for esthetic as well as essentially physical betterment. By adding to the procedure forced expiratory action, the lower ribs are made to contract powerfully, and the abdominal contents are raised toward the diaphragm, whereupon a varied train of advantageous effects ensues. In short, by a close study of the minor contractures and their economic correction, it is practicable to procure, at any age, that symmetry and elasticity of the body which constitutes the index of a high working capacity.

(A second paper will set forth illustrations of the practical value of right attitudes in aiding functional competence; also recommendations how correct posture may be achieved.)

Authors' Abstracts

RECOVERY IN A CASE OF INFLUENZAL MENINGITIS COMPLICATED BY PNEUMONIA.*

By THOMAS E. SATTERTHWAITE, M.D.,

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THE nervous phenomena which are occasionally features of the acute stage of influenza include neuralgias, functional disorders of the special senses, meningitis, cerebral or cerebrospinal, and psychic phenomena such as hallucinations, delusions, or even mania.

Most of the cases have been in children, whose delicate nervous system appears to render them especially sensitive to the toxins of the disease. The characteristic gross lesions consist of a series of minute hemorrhages scattered throughout the system. If an extravasation becomes infected by any of the pus-producing organisms, the prognosis is most unfavorable.

The influenza bacillus, though it may not always be found *intra vitam* in the blood or secretions or even by lumbar puncture, will usually be recovered at post-mortem examination by diligent search, though it may be associated with other micro-organisms, such as the pneumococcus or streptococcus, or may be replaced by them.

The poison may invade the meninges by extension, as from an otitis media or from abscess of a sinus; by metastasis, or by general infection of the blood by toxins.

Influenzal meningitis is usually ushered in by violent headache, especially frontal and nuchal; facial neuralgia, and photophobia. There are apt to be also irregular contraction of the pupils, muscular spasms, delusions, unconsciousness, etc. At first there is a high pulse rate, perhaps with arrhythmia. In the early stages the patellar or ankle reflexes are often exaggerated.

* Abstract of paper read at the Fourteenth Annual Meeting of the American Therapeutic Society, held in Washington, D. C., May 5 and 6, 1913.

Later, if there is effusion into the ventricles or at the base, there is loss of these reflexes, relaxation of the pupils, stupor, and slow pulse. There appears to be a moderate leucocytosis at this stage. In from 6 to 10 per cent. there is said to be albuminuria. There appears to be seldom any diminution in the number of red cells, or in the amount of hemoglobin, both of which may be increased.

The author collected a series of 44 cases of all ages, with a mortality of 20 per cent.; in a second series of 30 cases, all adults, there was a mortality of 29 per cent. The prognosis is very different when to influenzal meningitis pneumonia is added. Usually the pneumonia is of the bronchial form. In the case reported by the author there seemed to be a mingling of the lobar and lobular forms. It started apparently as an extension of a bronchitis, and in the right lower lobe when first detected there was apparently a central lobular pneumonia. In the left upper lobe the deposit occupied most if not all of the lobe, and presented the usual physical signs of the lobar form. The temperature curve was also that of lobar pneumonia. Deferescence occurred on the seventh day. Of 6 cases of influenzal meningitis with pneumonia collected from the literature, 5 died, while in the sixth there was an incomplete cure, the patient suffering for two years from aphemia and showing mental deterioration. The author's case is the only recorded instance of a full recovery in influenzal meningitis with pneumonia.

Lumbar puncture was not practised in this case. Bromides in massive doses, with cold applications to the head, gave relief from the nervous symptoms. The blood-pressure never exceeded 110, and was at first below that figure. Milk, with Vichy water, plain water, or albumin water, and yolk of egg were practically all the nourishment used during the acute stage. Vitality was maintained with strychnine and hypodermic injections of camphor. The usefulness of hexamethylenamine was not evident. Temperature was lowered by the cool bath, when it exceeded 103° F. The room was maintained at 65° to 68°, with an abundance of fresh air. In general, the treatment was symptomatic.

DISCUSSION.

Dr. F. E. Stewart, Philadelphia, said that in looking over the literature of pneumonia it had occurred to him that the word "diseases" could easily be omitted and the cases classified as infections. *Dr. Satterthwaite's* case appeared to be an instance of infection in which the lungs and meninges were particularly affected. Some authorities recommended the use of camphorated water instead of the oil. He would like to see more study along this line. Camphor was absorbed more quickly in aqueous solution, but less of it was taken up by the body.

Dr. H. B. Anderson, Toronto, reported 2 cases of meningitis due to influenzal infection: (1) Student; had suffered for some years with ear trouble, but of late it had been quiescent. He was suddenly taken down with grip, soon developed violent headache, restlessness, and delirium, and died after a few days. The site of infection was probably the ear. (2) Woman, 45; taken down with influenza of the ordinary type. While she was improving, there suddenly developed marked symptoms indicative of meningitis,—headache, delirium, and unconsciousness. The patient died after a few days. Lumbar puncture had failed to disclose the organism, or give any definite infor-

mation. The case was apparently one of meningitis complicating influenza, the infection having probably entered through the ear. The patient had previously suffered from transient ear pain and examination had disclosed evidences of a mild inflammation of the drum.

Dr. Satterthwaite, in closing, said he believed that the case was one of grip infection, the pulmonary and meningeal infection being secondary. There was no need of lumbar puncture, as the diagnosis was clear. His experience with camphor in cases of this kind had been very satisfactory. One of his patients had obtained so much relief from it that it was repeatedly asked for, and given continuously for weeks.

PULMONARY SYPHILIS, WITH REPORT OF A CASE PROMPTLY RESPONDING TO SPECIFIC TREATMENT.*

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PULMONARY syphilis, excepting the congenital form in children, is a rare disease. Bronchial catarrh may occur as a manifestation of the secondary stage of syphilis and be alleviated or cured by specific treatment. In the late secondary or tertiary stage gummatous infiltration of the submucous tissue of the trachea and bronchi is not infrequent, with resulting stenosis of the parts. Pulmonary lesions of acquired syphilis belong chiefly to the tertiary stage. Gummata may occur singly or in numbers, vary in size from a hemp seed to a goose egg, and are most commonly found in the interior of the lung and in the lower lobes, thus differing from tuberculosis. Syphilitic bronchopneumonia is undoubtedly a possibility. As to fibroid induration, the following are the changes of this nature that have been attributed to syphilis: (1) Thickening extending from the hilus around the bronchi and vessels; (2) isolated masses of fibroid tissue in various parts of the lung; (3) diffuse changes occupying the whole or the greater part of the lung. Fowler has reported 5 cases of the so-called "syphilitic phthisis."

The case reported by the author was that of a colored female aged 24 who had a distinct history of syphilitic infection, with five miscarriages. The symptoms had been chills, fever, sweats, cough, expectoration, and marked loss in weight. Three weeks before admission to a hospital she was hit on the head, in the right parietal region, with a brick. The wound had been treated, and looked healthy on admission, but since that time the lung symptoms had become more marked; there were severe chills, followed by fever and drenching sweats. The temperature *for weeks* reached 106° and over, and on occasions in the course of several hours would sink to 96½°.

* Abstract of paper read at the Fourteenth Annual Meeting of the American Therapeutic Society, held in Washington, D. C., May 5 and 6, 1913.

The expectoration was not abundant, but mucopurulent, offensive, and on one occasion slightly tinged with blood.

Percussion showed scattered areas of dullness over both sides, particularly at the right base. The apices were hyperresonant throughout the case, free from râles, and the seat of supplementary or puerile breathing. Over the dull areas the breathing was bronchovesicular and bronchial in character, vocal resonance increased, and numerous groups of subcrepitant and occasional crepitant râles heard. These signs continued until the ultimate decline in temperature took place, and at a late examination nothing abnormal could be detected in the chest. The von Pirquet test was applied twice, with negative results. The sputum, examined about a dozen times, was invariably free from tubercle bacilli, pneumococci, streptococci, and elastic fibers.

The condition during the greater part of the first six weeks seemed critical, and death was expected at any moment. The patient on admission had strenuously denied the possibility of venereal disease, and also concealed her numerous miscarriages. Later there developed what proved to be a gumma on the fourth rib of the right side, and at the same time a synovitis of the extensor tendons of the wrist. She was at once placed on inunctions of 2 drams of mercurial ointment and 60 to 80 grains of potassium iodide daily. The results were striking; the fever, symptoms, and physical signs commenced immediately, rapidly and continuously to improve, and she was later discharged cured.

DISCUSSION.

Dr. Thomas E. Satterthwaite, New York, said that at various times he had tried to bring up a discussion of this subject. At first he could hardly get anyone to believe that there was such a disease as syphilis of the lungs. The cases were thought to be instances of pulmonary tuberculosis. The pathologic findings, however, were very instructive,—particularly the white radiations running out from the gumma. The difficulty lay chiefly in the differential diagnosis. Once a diagnosis had been made, the gummata in the lungs and all the symptoms rapidly disappeared under appropriate treatment,—and this was an important diagnostic point. A positive blood reaction was a great help. The discovery of the germ would demonstrate that cases of pulmonary syphilis are more frequent than is generally supposed.

Dr. Pottenger spoke of the difficulty of making a correct diagnosis. The absence of tubercle bacilli from the sputum was not conclusive evidence. Some tuberculous patients but rarely presented bacilli in the sputum. In the case of one patient who had been in 2 sanatoriums for fifteen months the bacilli were detected in the sputum only twice. Their presence could easily be overlooked in such a case unless examinations were made frequently and very carefully. If one were persistent, however, he would be sure to find them sooner or later in many cases which had been considered as negative. The localization of the lesions was not significant. The negative tuberculin test meant nothing. In some cases where he suspected syphilis he found it necessary to use antisyphilitic treatment in combination with antituberculous treatment.

Dr. Osborne spoke of the value of the iodides from a diagnostic standpoint. They were ordinarily contraindicated in pulmonary tuberculosis. If, however, there were no tubercle bacilli in the sputum they could be given, and if afterward no bacilli were found the diagnosis was clear. He had found that, after giving them, the number of tubercle bacilli thrown out in the sputum was increased much as was the case after the administration of tuberculin.

Dr. Evans said that there were affections other than pulmonary tuberculosis that should be taken into consideration in making a diagnosis of syphilis of the lung. In illustration he related a case of a woman aged 35 who had been coughing for a year. There was a growth in the left chest pressing upon the heart, X-ray examination showing a mass that took up the mediastinum and extended over on the right side, compressing the lung. No tubercle bacilli in the sputum. One enlarged gland in the right supraclavicular region; glands in both axillæ. Liver enlarged. History of 4 to 5 miscarriages. Husband denied lues. In spite of negative Wassermann, the clinical picture suggesting syphilis, the patient was treated accordingly, without success. Examination of the supraclavicular gland which was removed showed that the growth was a lymphosarcoma.

Dr. Morris said that there was still another affection that should not be overlooked in making the differential diagnosis. In illustration he related a case that was first diagnosed as tuberculosis of the lungs, then pulmonary syphilis, and which finally turned out to be a case of blastomycosis.

Dr. Satterthwaite said that in the early stages it was almost impossible to differentiate between pulmonary tuberculosis and pulmonary syphilis.

Dr. Pottenger had not found potassium iodide harmful in tuberculosis. He had used it in a great many cases and often found it beneficial. His employment of it had been more particularly in advanced cases.

Dr. Osborne said that in incipient cases, according to his experience, the iodide was liable to stir up the pulmonary condition and make matters worse. He recollected in particular one such case in which the use of potassium iodide was followed by a lighting up of the symptoms and a change for the worse. In chronic cases the effect was somewhat similar, but it enabled the patient to expel the bacilli.

Dr. Roussel, in closing, said he was aware that the absence of tubercle bacilli did not exclude pulmonary tuberculosis; in fact, he had taught for years that if the diagnosis was postponed until the presence of tubercle bacilli in the sputum could be demonstrated, a large percentage of the patient's chances for recovery had been lost, but in a case presenting the marked and advanced physical signs which had been noted in his patient and with many repeated examinations of the sputum, which had been invariably negative regarding tubercle bacilli, particularly at the time she was taking large doses of potassium iodide, the conclusion must be absolutely against tuberculosis. This was confirmed by the very rapid recovery which had occurred since, and was being maintained. He had no doubt that the woman had syphilis of the lungs, and this was also the opinion of his colleagues. Moreover, there was no question that she had presented all the symptoms and physical signs of bronchial pneumonia, lasting over a period of four months. At present the woman's chest was normal. He did not believe that such a result could have been obtained within this period of time in any disease other than syphilis.

DIOXYDIAMIDOARSENOBENZENE-MONOMETHANE SODIUM SULPHONATE IN SYPHILIS OF THE NERVOUS SYSTEM.*

By EDWARD D. FISHER, M.D.,

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NEW YORK, N. Y.

WE have in this comparatively new remedy one of the most important aids to the treatment of syphilis of the nervous system, both in the early

* Abstract of paper read at the Fourteenth Annual Meeting of the American Therapeutic Society, held in Washington, D. C., May 5 and 6, 1913.

manifestation, *i.e.*, cerebrospinal syphilis, and in the so-called parasyphilitic affections, tabes and general paresis. With the control examinations of the blood and cerebrospinal fluid, we have in the use of this drug a rational method of therapy, the necessity of continuance of treatment, or its cessation, being indicated by the presence or absence of the Wassermann reaction.

With the discovery of the spirochetes in the brain and spinal fluid in tabes and general paralysis, the indication for the removal of this active agent of syphilis becomes mandatory. We should bear in mind, however, that after definite pathologic changes have taken place nothing can be accomplished beyond preventing further extension of the disease by the still active agent. Too much emphasis cannot be placed, therefore, on the importance of early diagnosis by careful serologic and clinical examination.

We have in the remedy under consideration one which, if employed at the proper time, can effect much in staying further progress of syphilitic disease of the nervous system, if not, indeed, in certain forms, produce a cure.

DISCUSSION.

Dr. J. J. Kinyoun said that during the last two and a half years he had examined a number of tuberculous patients for syphilis, and had found a strongly positive Wassermann reaction in about 30 per cent. of cases. He was still pursuing the investigation at a reformatory institution for boys. So far he had found a positive reaction in 23 per cent. of the boys examined,—boys between 12 and 18 years of age.

Dr. Fisher, in closing, said that the effect of the new remedy in neuritis had been rather favorable than otherwise. The Wassermann test was of great value in doubtful cases, such as those of hereditary syphilis, and where there was uncertainty as to the nature of a mental disease, *e.g.*, in some cases of general paresis. The use of a new remedy such as this, so easy of administration, was likely to be carried to extremes. It sometimes fell into wrong hands, and hopes of cure were engendered that were not to be fulfilled; on this account he thought it well to sound a note of warning as to the small proportion of cases in which a cure could be expected after a certain point had been reached.

PROLONGED-PRECIPITATE PARTURITION DUE TO DISENGAGEMENT OF THE DISPROPORTIONATE HEAD.*

By A. ERNEST GALLANT, M.D.,

NEW YORK, N. Y.

THE combination of a normal pelvic inlet with a relatively small fetal head which, failing to flex properly, fails to engage and stay in the grip of the inlet; fails to make any advance; fails to glide down the pelvic planes, and thus causes delay for many hours or days, was met with in about 65 per cent. of the author's consultation cases. The maneuvers to which one may resort in order to facilitate flexion and engagement of the head within the

* Abstract of paper read at the Fourteenth Annual Meeting of the American Therapeutic Society, held in Washington, D. C., May 5 and 6, 1913.

inlet and keep it there between the pains, that it may not recede and wobble above the brim, are: (1) External pressure on the buttocks at the fundus, exaggerating the flexion of the trunk on itself and the chin on the sternum; (2) external pressure on the occiput just above the symphysis, with the palm of the hand pressing the occiput down into the brim; (3) internal pressure on the forehead, with the fingers in the cervix, *tilting* the forehead *upward* during each pain; (4) introduction of a single blade of the forceps to the occiput and gentle traction during a pain to facilitate flexion and engagement,—best accomplished by a solid blade forceps, as the head will move more readily and the bulk of the forceps will help to fill up the relatively roomy inlet, the head engaging more firmly and advancing more surely; (5) guidance traction,—high forceps, with *loosely fitting blades, chiefly as guides* and to prevent recession, being careful not to drag too vigorously or suddenly lest a too-precipitate delivery occur and the mother suffer a torn perineum which could have been avoided; (6) judicious combination of two or more of these manipulations as the case may demand. Experience has strengthened the author's conviction that the chief danger to the child in the use of forceps lies in the *unrecognized and uncontrollable compression of the head*, caused by the pressure of the cervix, vagina, and pelvic walls on the blades. This has been largely overcome by a "safety lock," devised and described by him.

THE TREATMENT OF SPLANCHNOPTOSIS, WITH REPORT OF CASES.*

By ELMER B. FREEMAN, M.D.,

BALTIMORE, MD.

THE essayist emphasized the point that congenital cases of splanchnoptosis should be recognized in early childhood. Exercises that would tend to increase the capacity of the abdomen and develop strong abdominal muscles might decrease the number of severe cases. Cases without adhesions, or with loose adhesions, could be relieved and made comfortable by proper medical treatment. Cases with firm adhesions which caused a definite kinking or constriction of any portion of the gastrointestinal tract, with symptoms of chronic obstruction, required surgical intervention. The medical treatment referred to had for its object the improvement of nutrition, an increase in the nervous and muscular tone, the correction of gastric disturbance, and the removal of constipation. Forced feeding, rest in bed, and the use of a suitable corset might be required. The author preferred the corset recommended by Doctor Gallant some years ago.

DISCUSSION.

Dr. A. Ernest Gallant, New York, said that he had been the first in this country to advocate scientifically constructed corsets in the mechanical treatment for visceral

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ptosis. He was glad that the medical profession had come to realize that but few cases call for operation. In most cases the organs could be adequately supported and the dragging downward counteracted. The corsets on the market today failed to furnish the right sort of support, being designed upon an erroneous principle. Under them all, at the bottom in front, was a space that allowed sagging of the abdominal contents. One of the chief objects of support was to do away with this. Dr. Gallant's way was to put the patient on her back, raise her hips, allow the organs to flow back, with the assistance of massage, and then to lace the corset snugly and properly so that when the patient arose there should be no opportunity for falling down of the abdominal contents. He believed that his corset met these requirements. It did not permit of any sagging, whether the patient were standing, sitting, or lying down. It put a shelf under the lower abdomen to hold the viscera up, thus doing away with the sensation of dragging that so many women experience. The cause of the sensation was the dragging of the unsupported organs upon the whole system of attachments along the spinal column, from the neck down. Proper support must and did hold up not only the abdominal viscera, but the thoracic viscera as well. If the epigastrium was hollow as compared with the protuberant hypogastrium there was sure to be displacement of one or several viscera. Each organ might not sag very much, but the downward pull of all together caused the discomfort and neurasthenic symptoms. The relief afforded by a properly adjusted corset was demonstrated by the change that came over these patients when they foolishly lay the corset aside for a time. Some of them had to go to bed while it was being repaired.

Cyclopedia of Current General Literature

Gonorrhea in the Female, Iodine Treatment of.—Following the suggestion of Bovée, the author has recently employed the iodine treatment for gonorrhea in the female, with excellent results. The presence of the gonococcus in the discharges having been ascertained, the external genitals, after separation of the labia, are swabbed with a 3.5 per cent. solution of iodine crystals in 9.5 per cent. alcohol. Next the orifices of Skene's glands are sought, and a few drops of the same solution forced in by means of an ordinary hypodermic syringe with a needle made blunt by filing. Next the external openings of the vulvovaginal glands are found and similar injections made. The patient is now placed in the Sims position, Sims's speculum introduced, the vagina swabbed dry with cotton, and the presenting cervix (not the

canal) painted with the iodine solution by means of a cotton swab about the size of a hickorynut firmly fastened in the ordinary dressing forceps. The anterior wall is thoroughly painted, then both the right and left sides. Next the swab should be pressed firmly up into the posterior *cul-de-sac*, the speculum partly withdrawn, rotated so as to press against the anterior vaginal wall, and the posterior wall swabbed. A narrow strip of gauze should then be introduced as high up against the posterior wall as possible, the speculum removed, and the gauze allowed to protrude beyond the introitus. If a bivalve speculum is used, with the patient in the dorsal position, it becomes necessary to swab the vagina in smaller sections. The swab is then firmly pressed into the posterior *cul-de-sac*, the speculum withdrawn, the vaginal walls allowed

to collapse, the swab slowly removed with a rotary motion, and a small piece of gauze introduced as before. The patient is apt to complain of smarting for half an hour, but rarely longer. Some patients seem to experience no inconvenience whatsoever. Doses of 5 to $7\frac{1}{2}$ grains of hexamethylenamine are given four times daily with plenty of water. The patient is ordered to rest as much as possible, and, where possible, kept in bed, with a light diet. The bowels are kept free by means of cathartics; an enema is never used, for it enhances the possibility of rectal infection.

In a protracted case where the cervix and uterus have become involved, the treatment is more tedious. In making intracervical and intrauterine applications, the patient should be in the dorsal position and the bivalve speculum used. After painting the cervix with iodine, the anterior cervical lip is grasped with a single volsellum forceps, any stringy discharge removed, and a small uterine sound gently introduced if the size of the canal demands it; otherwise, dilatation should be rigidly avoided. The intrauterine syringe is then introduced into the cavity of the uterus to the fundus and a dram of the iodine solution instilled, gently. While withdrawing, the solution should be allowed to escape from the syringe until the tip presents at the external os. The vagina is then treated as in acute cases.

The applications are repeated every third day both in the acute and chronic forms of the disease. Two days after the third application smears are again taken, for microscopic examination, from all the different

structures involved. If the gonococci are still present, the treatments are continued, and in addition the vaccine treatment is begun, using large doses at short intervals.

If the urethra proper requires any direct local treatment, the applications should be preceded by cocaineization.

In all cases hot douches are ordered to be taken in the recumbent position with hips elevated. From 4 to 6 quarts of hot normal salt solution are to be used, twice to four times daily, each time followed by a 1-quart injection of potassium permanganate solution, 1:5000, or picric acid, 1:250.

The patient is instructed to remove the gauze drain at the time of the first douche, which should be taken about four hours after the local treatment.

With this method the author has obtained uniformly encouraging results and frequently rapid cures. He is opposed to curettage in obstinate cases of gonorrheal endometritis where gonococci can still be demonstrated, though when the condition has reverted into a simple chronic hypertrophic or fungous endometritis, minus the gonococcus, local applications become useless, and a curettage is then done. O. Hofmann (*Interstate Medical Journal*, August, 1913).

* * *

Gonorrheal Vaginitis in Children, Treatment of.—In the gonorrheal vaginitis of children vaccines seem to perform their duty in an almost specific manner. The discharge is usually a mixed infection. Besides the gonococcus the organisms usually met with are the staphylococcus, streptococcus, diplococcus, colon bacillus, and pseudodiphtheria organ-

ism. The culture medium used for the gonococcus is either human blood agar or hydrocele or ascitic agar. The other organisms grow readily on ordinary agar.

Five culture tubes are inoculated with the discharge, 2 being the special media and 2 of the plain agar. The tubes are incubated for forty-eight hours at 37° C., and the vaccine prepared, taking all the growth from all the 5 tubes. No local treatment should have been administered for one to two days before the taking of the cultures, to insure an uncontaminated product.

The initial dose of the mixed autogenous vaccine should be 25 to 50 million, and the succeeding doses be gradually increased. The amount to be given may be judged by the reaction and the clinical needs of the case. The interval between injections should not be less than five nor more than seven days. Smears should be made two weeks after the first dose and then every week to determine any improvement and note any change in the discharge, as some organisms disappear more quickly than others. These smears are always two in number, one stained with methylene blue and the other by the Gram method, counterstained with Bismarck brown. If after six weeks the case still needs treatment a second vaccine should be made, the first having probably lost its efficacy, and also because there may be some bacteriologic change in the case.

Forty cases were thus treated by the author. No other measure was used, except ordinary external cleanliness with mildly antiseptic solutions. Each case showed three negative smears, one week apart, before being

discharged as cured. Not a case showed constitutional reaction or severe local reaction. The average number of injections given was 7. Maurice Wolff (Chicago Medical Recorder, September, 1913).

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Nervous Fatigue, Hydrotherapy in.

—Hydrotherapy, the author asserts, is by far the most important of all the physical measures used in the treatment of nervous fatigue, though the hydiatic prescription can be intelligently applied to the patient only when it is based on a thorough diagnostic knowledge of the case. The nervously fatigued do best in some small institution thoroughly equipped with apparatus by which the various forms of douche can be administered. A plan suitable for the home, however, or for those whose reaction is poor is the following: Dry pack for from one-half to one hour, followed by a cold sponge with water at a temperature of 70° F. for three minutes, with vigorous friction. As soon as this point is reached, dispense with the dry pack and give the dripping-sheet at 65° F. for three minutes, with good friction, while the patient stands in a foot tub of water as hot as can be borne. Reaction must be secured. This treatment is generally administered in the morning, and when this time is selected one should give the general wet pack at 65° F. for one hour at bedtime. When the patient is removed from the pack he is rapidly dried and no reaction is sought. The advantage of this method of treatment is to obtain the stimulating and tonic influences of the dripping-sheet in the morning and the sedative and sleep-producing effects of the wet pack at bedtime.

Another good method is to have the patient sit in a half-bath with water at from 102° to 104° F., while the attendant gives him an affusion at 80° F. At this point the patient should stand in the tub in water as hot as can be borne, while the affusion is given to the entire body, or the water is thrown with force against the body from a large dipper. This may be further modified by first immersing the body in warm water, then giving a salt rub or glow, followed by the affusion. The warm full bath (104° to 105° F.) for five or seven minutes, followed by the salt rub and finally by the cold shower at from 70° to 65° F., will be found useful. Reaction is essential.

Insomnia in cases of nervous fatigue can best be met by the cold pack or dripping-sheet at bedtime, or by the trunk compress, consisting of a coarse linen bandage wrung out of water at a temperature of 65° F. and covered by several layers of the same material to exclude the air. It should be worn all night. An excellent method, too, is the neutral bath at 94° to 96° F. for from twenty to sixty minutes.

For *headaches* and *head pressure* a fomentation applied for five or ten minutes twice, and followed by a cold compress, is very effective. If the headache is congestive, the hot foot bath should be used, followed by the ice-bag to the nape of the neck and the cold compress to the forehead. Sitz baths at 90° F., or cold foot baths, will often give relief.

The so-called "*neurasthenic spine*" is best met by general douche treatment to the spine. When this is not effective, the Scotch douche at from 120° to 125° F. for thirty seconds should be used, followed by

a temperature of from 50° to 60° F. for from five to ten seconds, with four alternations. Sometimes the hot and cold spinal sponge at bedtime is successful.

Menstrual delay and *pain* are best met by the hot sitz bath at from 110° to 115° F. for ten to fifteen minutes, followed by cold affusion over the hips. The warm (not hot) vaginal douche favors the commencement of the period.

For *anorexia*, a glass of ice-water should be given one hour and the ice-bag applied for half an hour before meals.

Rectal irritation and *constipation* are greatly benefited by the use of the perineal and anal douche as hot as can be borne, followed by a cold douche of from 60° to 50° F.; stronger revulsive effects may be obtained by an alternate hot and cold application.

Hydrotherapy reinforces and makes much more efficient any drug medication administered in conjunction with it. Curran Pope (Journal of the American Medical Association, September 13, 1913).

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Pleurisy in Children, Diagnosis of.

—Pleurisies in children may be divided into two main types, tuberculous and non-tuberculous. The non-tuberculous exudate is visibly purulent almost from the first. It may be strongly suggested by a high leucocytosis, and it is usually cured by one or two tappings or by proper drainage. Cure may be hastened by the use of proper vaccines. The clinical course may be initiated by symptoms of pneumonia. Symptoms persisting after the date of crisis should lead to a suspicion of pleural

exudate rather than unresolved pneumonia. In acute, non-tuberculous pleurisy, the symptoms may be mainly abdominal. The pus invariably contains the specific micro-organism responsible. Smears usually, cultures in the other cases, will determine the nature of the infection. This will rarely be found to be mixed, but will be caused by the pneumococcus, streptococcus, or staphylococcus. An appropriate vaccine that is preferably not a mixture should therefore be selected.

Tuberculous pleurisy is of more insidious development and is at first serious. High leucocytosis is rare or delayed until secondary infection occurs. The condition is practically never cured by the needle and often fails to respond to proper drainage. Shotgun mixtures of vaccine are valueless.

A purulent empyema which fails to show either by smears or cultures any bacteria is undoubtedly tuberculous. Secondary invasion by other bacteria occurs now and then, and these demand suitable vaccines. Rarely the tubercle bacillus may be found. Guinea-pig inoculations or cultures upon egg medium may aid in its isolation.

In children pericarditis is sometimes mistaken for pleurisy, and one should watch for pericardial exudate to explain thoracic pain, cough, and dyspnea. Such cases have rarely been tuberculous in the author's experience. Bacteriologic examinations are essential for proper treatment of these cases.

The author has been struck by the frequency of serous exudates in the pleural cavity in children showing no pain, no or little dyspnea, and no

cough, but in whom there is noted a progressive loss of weight and anemia. The child appears languid or even stupid, and eventually the family realizes that it is sick. Finally, the presence of fluid is discovered and a gallon or more of serous exudate may be withdrawn. In some of these cases not a cell or bacterium may be found and the examination proves of no diagnostic worth. Some of these cases are those of mediastinal tuberculosis (lymph-glands), some are leukemias, and some are malignant growths. B. G. R. Williams (Medical World, October, 1913).

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Postoperative Intestinal Stasis, Prophylaxis of.—Abrasion of the peritoneal surface of the gut is a most common and frequently unavoidable cause of postoperative intestinal stasis. The method of overcoming the effects of this traumatism by means of mineral oil, introduced within the abdominal cavity at operation, has proved effectual and safe. The dose used by the author was 6 ounces, the oil being sterilized, poured into the abdominal cavity, and sponged over the coils of intestine.

Experimental studies in guinea-pigs and dogs showed that bland, non-irritating oil, represented by purified liquid petrolatum obtained from Russian oil, causes none of the changes characteristic of adhesion formation, viz., endothelial cell injury, production of a coagulable exudate, agglutination, organization, and finally scar production. The oil has no appreciable chemical action upon the tissues, nor a deleterious effect upon the animal, and is slowly absorbed. Used intra-abdominally in

sufficient quantity, it prevents to a great extent the formation or recurrence of adhesions. It fills the lymphatic channels leading from spaces denuded of peritoneum or opened by incision, thus limiting septic absorption, and, through preservation of the endothelial cells, prevents extension of peritonitis. Oil is used to advantage in place of salt solution, upon abdominal pads or gauze introduced into the abdominal cavity during operation, and, in exceptional cases, poured into the wound. It protects the abdominal contents from much injury and eliminates or minimizes postoperative vomiting, abdominal pain, and intestinal stasis. W. F. Burrows (*Journal of the Medical Society of New Jersey*, November, 1913).

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Pregnancy, Value of Abdominal Measurements in.—From a statistical study of 300 labor cases the author has computed a rule for estimating the week of pregnancy from the measurements of the height of the fundus. This has been found of considerable value, especially in cases where no menstrual history can be obtained. The rule is: Measure with a tape the height of the fundus above the symphysis in centimeters, making allowance for settling when present, and add 2 to measurements between 22 and 26 cm., 3 to measurements between 26 and 30, 4 to measurements between 30 and 32, and 5 to measurements over 32, which sum will equal the probable week of pregnancy. In about three-fourths of all cases it is thus possible to estimate as closely as with Naegele's rule the date of probable delivery. A. B. Spalding (*Jour. Amer. Med. Assoc.*, September 6, 1913).

Protein Metabolism, Rôle of Thyroid Gland in.—On the basis of a large number of chemical analyses conducted in the last twenty years on both normal subjects and individuals suffering from chronic joint disturbances, the author holds that two forms of gouty disorder should be distinguished, the uric and the puric forms, each variety corresponding to a distinct functional metabolic defect. In chronic joint cases not of gouty nature, the metabolism of nucleins does not appear to be influenced,—or at least it is not affected to the same extent as in the gouty. In these cases there is more particularly a disturbance in the metabolism of the proteins; there seems to be a decrease in the power of deamination in the cells of the entire organism. This functional disorder is probably related to insufficiency of the thyroid gland. Normally, according to the author's investigations, the thyroid secretes a deaminizing hormone which reacts upon the intracellular reactions and influences the course of protein metabolism. When thyroid preparations are first given to the non-gouty chronic joint cases, urinalysis shows an increase in the ammoniacal salts from which urea is derived. Slosse (*Académie royale de Médecine de Belgique; Presse médicale*, October 29, 1913).

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Puerperal Fever, Treatment of.—Intravenous injections of distilled water were administered by the author in 142 cases of puerperal fever. Of 62 patients with pyemia and septicemia, 42 were cured. The author had previously found in rabbits that 8 c.c. of distilled water per kilogram of body weight could be injected with-

out harm. Clinically it was found that after an injection the red cells and leucocytes might show either an increase or a decrease. Patients in whom the red cells increased, whatever might be the severity of the attendant septicemia, were observed generally to recover, while those in whom the red cells fell off constantly in spite of the infusion generally succumbed, though local operative measures might be productive of benefit. In an hour or an hour and a half after a distilled water injection there usually occurs a chill, with a rise in temperature. By evening or the following morning, however, the temperature will have fallen to normal, sweating usually accompanying the drop. W. J. Ilkewitsch (*Zentralblatt für Gynäkologie*, September 20, 1913).

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Puerperal Sepsis, Prophylaxis of.—Lactic acid is asserted by the author to be an important element present in normal vaginal secretions and lacking in pathologic secretions. Whenever irrigation of the vagina with boiled water through a speculum yields a yellowish fluid, he irrigates once daily for at least ten days with a 1:200 solution of lactic acid. This measure, applied for the last three and a half years to every parturient woman in which it was indicated, reduced the morbidity as regards puerperal fever from 28.6 to 7.6 per cent. Women with pathologic vaginal secretions thus prophylactically treated show no greater tendency to infection than those with normal secretions. The lactic acid seems to overcome the pathologic bacteria and favors the growth of those normally present.

The author also points out the danger of full baths before delivery,

mentioning several cases of severe puerperal fever for which no cause could be found except the entrance of bath water into the vagina. P. Zweifel (*Zentralblatt für Gynäkologie*, September 27, 1913).

* * *

Pulmonary Apices, Percussion of.—The author holds that when auscultatory signs make their appearance in pulmonary tuberculosis, it is an indication that the infiltrate has softened and broken through a bronchus, and the case can no longer be considered incipient. Discussing percussion as a means of early diagnosis, he calls attention to the fact that the percussion stroke penetrates only about 6 cm. into the chest. Centrally located airless areas, such as bronchial glands, etc., surrounded by normal lung-tissue, cannot be demonstrated, even by very strong percussion. The stronger the blow, the more its force is dissipated along the elastic ribs and intercostal spaces, which vibrate strongly and give no clue as to the condition of the spot lying vertically beneath the stroke.

Light percussion is sufficient in most cases, especially at the apices. The contrast between the resonance of the air-containing tissue and the deadness of the airless spot is striking when light percussion is practised. The sound becomes entirely inaudible when areas of defective resonance are reached. In small, disseminated foci of airless tissue, excessive force of the percussion stroke may evoke a normal or overresonant note. If on increasing the force of the stroke the dullness remains, one may safely conclude that there is an extensive area of airless tissue.

The contact of the pleximeter

finger with the chest wall must not be too firm, thus avoiding tension of the intercostal muscles and their conversion into large pleximeters. Care must also be taken to percuss only intercostal spaces, because placing the pleximeter finger over a rib prevents localization.

In most cases of tuberculosis shrinkage of the apex occurs quite early. Upon mapping out the resonant areas on both sides, anteriorly and posteriorly, any disparity appears quite vividly. For practical purposes it is sufficient to percuss the apex in its true anatomic position, which is anteriorly between the heads of the sternocleidomastoid, reaching about 3 or 4 cm. above the clavicle; and posteriorly, close to the spinal column, to the height of the vertebra prominens. A shorter apex on one side is of immense significance. The resonance also must be of about the same intensity on both sides.

Percussion of the supraspinous fossæ proper, over the scapulæ, and anteriorly between the trapezius and the sternocleidomastoid, is a vain effort—no pulmonary tissue is located there.

In infiltrated apices a long and held inspiration gives a duller note on percussion than is found over the opposite, healthy side; this is often of great value in doubtful cases.

In the interpretation of percussion findings in the apices, the sources of error are about the same as in radiography. Whether airless lesions are tuberculous, and whether the process is active at the time, can only be determined by careful study of the history, symptomatology, and course of the disease. If the latter point to a tuberculous infection, one may safely diag-

nosticate tuberculosis without any definite auscultatory signs. Maurice Fishberg (*New York Medical Journal*, October 25, 1913).

* * *

Rabies, Treatment of.—Potassium iodide has recently been used by the author as an adjuvant to the customary treatment by inoculation in hydrophobia. A 2 per cent. solution of the salt is used, each patient taking a tablespoonful or dessertspoonful of it at frequent intervals throughout the course of preventive injections. In 3 cases of abortive rabies the symptoms promptly disappear after the use of potassium iodide, while ordinarily the opposite condition prevails, the manifestations growing worse. It is especially in cases where the infection has existed in latent condition for some time that the author recommends the use of potassium iodide. He thinks it might also be of value in the prophylaxis of rabies. The drug may so affect the central nervous tissues that their affinity for the virus of rabies is removed. Traumatism, abuse of alcohol, and emotional stress are to be avoided in cases where the presence of the virus in a latent form is suspected, as these influences tend to excite it into action. J. Koch (*Deutsche medizinische Wochenschrift*, October 16, 1913).

* * *

Respiratory Affections in Young Children, Treatment of Acute.—The administration of hot baths in acute bronchitis, bronchiolitis, and bronchopneumonia in young children is strongly recommended by the author. Such baths, followed by brief affusion of cold water, reduce fever, stimulate expectoration; deepen the breathing, thus obviating atelectasis and stagnation

of secretions; exert a sedative, soporific effect, improve the appetite, stimulate elimination through the skin, and, in fact, often seem to act specifically in shortening the course of the disease. Uniform recovery has been the rule since these baths have been used. The temperature of the bath water is 41° C. (105.8° F.), more hot water being added as cooling occurs, and the patient is bathed every three hours, up to five times a day. The baths are particularly appropriate for feeble children who become chilled at the periphery while the internal temperature is abnormally high. The weaker the child and the higher the fever, the more frequently the baths are given. Where the temperature is not above 39° C. (102.2° F.) a ten-minute bath is given three times a day. The hot bath is not contraindicated where the temperature exceeds 40° C. (104° F.) in infants or very young children, though for older children warm baths may be substituted. The hot bath causes an actual fall in the rectal temperature of several degrees, attaining its maximum one-half to one hour after the bath. The theory that hot baths promote congestion of the internal organs is not supported by the author's observations. At the conclusion of each bath a nurse holds the head of the child in both hands, preventing entrance of water in the nose and mouth, and elevates the child from the hot water so that the back of the neck is exposed; cold water is then dashed once over the neck, causing a reflex gasp for breath, bringing into play the auxiliary respiratory muscles. The child is next reimmersed momentarily in the hot water and cold water poured on the chest, after which the patient is

dried, wrapped in warmed clothes and placed in a warmed bed. No heart depression follows, no matter how feeble the infant. The baths are continued once daily into convalescence if the patient coughs. As a prophylactic measure against nasal catarrh the author also uses the hot bath, omitting, however, the subsequent cold affusion, and covering the child warmly enough to induce perspiration. In various other affections in infants with poor peripheral circulation, even where there is no fever, the hot bath is likewise useful. Arneth (*Deutsche medizinische Wochenschrift*, September 25, 1913).

* * *

Skin Diseases, Vaccine Treatment of.—The author comments upon the lack of uniformity and certainty still prevailing as to the results of vaccine treatment in skin affections. He holds it to be extremely important to ascertain everything about the origin of the disease before starting the vaccine. Thus, it is poor practice to attempt to treat severe acne by inoculation without relieving any dyspepsia found present, or to treat chronic eczema of the lips with an autogenous staphylococcic vaccine, when the whole trouble is due to an irritating mouth-wash.

In *furunculosis* the vaccine treatment is perhaps seen at its very best, failure being quite exceptional. The author has found it best to give 250 million staphylococci as the initial dose, and raise this rapidly afterward. In every case where the furunculosis is localized, as on the neck, efforts should be made to discover the local conditions at work and combat them by other appropriate means.

Whereas the *impetigo* of Bockhart yields almost uniformly good results

with the vaccine treatment, *sycosis* and *chronic pyogenic eczematoid dermatitis*, especially in long-established cases, show only a remarkable improvement at the beginning of treatment, followed by persistent relapse, which will not yield to further inoculation. In the exceptional cases of *impetigo contagiosa* in which the disease refuses to yield to local measures, a small number of staphylococcic inoculations—usually, in fact, a single one—will bring about prompt cure.

In severe *erysipelas* suitable doses of streptococcic vaccine often act in an almost miraculous manner. A single small inoculation,—say of 5 million,—preferably of autogenous vaccine, will usually cause a critical fall of the temperature, and a second or third at about five days' interval will usually cause complete resolution.

In chronic streptococcic infections, however, whether superficial or deep, such good results are not obtained.

In *acne*, vaccine treatment is a useful adjunct, but many cases will not yield to it alone. It is a great waste of time to omit suitable local treatment. Neither the mixed vaccine nor the specific microbacillus alone has any effect in subduing the fundamental seborrhea.

In *lupus vulgaris* old tuberculin acts much better than any other. The author begins very cautiously, then makes a steep rise in the dose as soon as one dose ceases to call forth a reaction. In 1 or 2 cases the author has had remarkably good results. In cases where the Finsen light cannot be applied, the inoculation treatment is capable of great service; probably it may be combined with it with advantage.

In *tuberculous ulcers* and *Bazin's disease* the same method yielded considerable success, though more caution was found necessary as to dosage than in

lupus. In indolent ulcers persisting for many months, 1 or 2 doses of old tuberculin will usually cause complete healing in a week or two. Arthur Whitfield (*British Journal of Dermatology*, October, 1913).

* * *

Syphilis, Salvarsan in.—The author asserts that the spirocheticidal action of salvarsan is an indirect one, intervention of the body fluids being probably essential to its activity. In the test-tube the spirochetes can fix salvarsan, but they are not killed by it; their destruction is complete only in the human organism. Wright has shown an analogous phenomenon to hold good with respect to pneumococcus.

Salvarsan should always be employed in an alkaline solution, as an acid solution destroys the proteins of the blood and is more toxic. A rabbit was given 64 injections of alkaline salvarsan solution, the total amount corresponding to 184 Gm. of salvarsan in man, without producing any microscopic changes in the tissues. In the case of the acid solution, on the other hand, the animals generally succumb after the second to the fourth injection.

The drug has no neurotropic property. Ulmann showed that after the injection of salvarsan in rabbits the brain and other portions of the central nervous system contained only very small amounts of arsenic—less than is found after the administration of inorganic arsenicals. In most cases the brain contains no arsenic at all.

Febrile reactions following salvarsan injections are sometimes due to errors in technique (relating to the water used or the glass of which receptacles are made), but in most instances they arise from the fact that salvarsan is injected precisely during the eruptive stage, when the organism is saturated

with spirochetes. Liberation of toxins from the latter is responsible. Fever may be prevented by preliminary mercurial treatment, and in any case does not develop after the second and subsequent injections. It is to be borne in mind, too, that salvarsan brings about destruction of a multitude of other micro-organisms which may be present in the system, and that the death of these can also give rise to fever.

That neurorecurrences are in reality recrudescences of syphilis and indicative of inadequate salvarsan treatment is now admitted by most observers.

Three conditions absolutely contraindicate the use of salvarsan, viz., Addison's disease, the status thymicolymphaticus, and cancer. Ehrlich (International Medical Congress, 1913; *Presse médicale*, August 30, 1913).

* * *

Tuberculosis, Prognosis in Pulmonary.—A marked decrease in the percentage of lymphocytes in the blood is a bad sign in pulmonary tuberculosis. Each tubercle is surrounded by a wall of lymphocytes, and while in the early stages of tuberculosis there is an extra production of lymphocytes keeping pace with the defense set up against the morbid agent, such demands on these cells may later be made by extensive tuberculous lesions that the proportion in the blood sinks below normal,—even to 5 per cent. Affections such as measles

and typhoid fever, which likewise make special demands on the lymphocytes, thereby render the system vulnerable to tuberculosis or tend to remove the barriers surrounding already existing, but as yet latent, tuberculous foci. Testing the urine for urochromogen also affords valuable prognostic information. This is done by diluting urine in a test-tube with 3 parts of water, pouring half of the resulting dilution into another tube, and adding to either tube 3 drops of a 1:1000 solution of potassium permanganate. If a canary-yellow color develops, the test is positive. The appearance of urochromogen in the urine indicates that a previously localized tuberculous process is tending to become general and seriously threatens the system as a whole. In 84 cases in which the urochromogen test was compared with the cutaneous tuberculin test by the author, the results agreed in 66 instances. The ultimate event in these cases showed that in nearly all instances the urochromogen had furnished more accurate prognostic indications than the tuberculin reaction. Whenever urochromogen exists in the urine the prognosis is unfavorable, especially if it has been present for some time. The test becomes negative again when the system regains the upper hand over the infection. M. Weiss (*Wiener klinische Wochenschrift*, October 16, 1913).

Book Reviews

A CLINICAL MANUAL OF MENTAL DISEASES. By Francis X. Dercum, M.D., Ph.D., Professor of Nervous and Mental Diseases, Jefferson Medical College, Philadelphia. Octavo of 425 Pages. Philadelphia and London: W. B. Saunders Company, 1913. Cloth, \$3.00, net.

In this new manual on psychiatry the author has taken up the subject largely from the standpoint of clinical medicine. Special stress is laid upon the clinical pictures commonly met with, upon the prognosis, and upon treatment. The psychologic interpretation of the symptoms of insanity—an evidence of what the author designates "the recrudescence within recent years of speculative and metaphysical psychiatry"—has been only briefly, though

clearly and suggestively, presented. Any more than this, in the present state of the subject, would, as the author believes, be superfluous as regards the needs of the student and general practitioner. "Our knowledge of mental diseases," Prof. Dercum forecasts, "will doubtless advance in two parallel directions: namely, that of internal medicine and that of psychologic interpretation. To the practising physician, to the needs of state medicine, of public hygiene and prevention, that of internal medicine will ever prove the most important."

The author's classification of mental diseases, as exemplified in this work, is a relatively simple one. In one chapter are considered delirium, confusion, and stupor as general manifestations of infection, poisoning, or other common conditions, these constituting the simplest and most frequent mental disturbances with which the practitioner has to deal. In subsequent chapters are taken up as distinct groups melancholia, mania, and circular insanity; the hebid-paranoid group (dementia præcox; paranoia); the neurasthenic-neuropathic insanities, and, finally, the dementias. Part II, occupying most of the second half of the book, is on mental disturbances not covered in the first part, more especially those related to the somatic affections, such as intoxication by various drugs, metabolic disorders, diseases of the viscera, ductless glands, and nervous system, and the child-bearing state. The practitioner will thus find useful information concerning the mental phenomena met with in diabetes, epilepsy, chorea, the parasyphilitic diseases, trauma, etc. In another chapter mental diseases as related to age are considered; next certain mental diseases not ordinarily included under insanity, such as borderland manic and paranoid states (the *mattoïds*); states of moral deficiency and criminality; sexual abnormalities, and hypochondria. The work closes with sections on insanity by contagion, psychoanalysis, and the treatment of mental disease in general. The book is written in the author's customary unimpeachable style, and by reason of the careful selection and arrangement of the facts, as well as their clear presentation, cannot fail strongly to appeal to its readers.

DIAGNOSE UND THERAPIE DER HERZKRANKHEITEN. Von Prof. Dr. Ludwig Braun, Primararzt in Wien. Second, completely Recast Edition. Octavo of 362 Pages, with 37 Illustrations. Berlin and Vienna: Urban & Schwarzenberg, 1913. New York: Rebman Company. Paper Binding, 15 marks (\$3.75).

Since the first edition of this concise textbook was published in 1903, remarkable advances have been made in cardiology, necessitating extensive changes and additions to the work. Besides, the scope of the book has been enlarged to include diagnosis as well as treatment. The more particular requirements of the general practitioner and student have, however, as before been kept in mind, and refinements of diagnostic procedure referred to only in so far as they are likely to be available to the former. Direct methods of examination, as well as drug and physical treatment, are dealt with at length in both the general and special sections, thus affording as much assistance as possible in a work of this size to the practitioner far from central facilities. Stress is laid rather on the condition of the heart muscle *per se* in prognosis than on the nature of the valvular or other localized lesions under which the heart may be laboring. In the section on general diagnosis the various methods of physical examination are described in detail, including arterial sphygmography, the securing of tracings of the venous pulse, blood-pressure estimation, plethysmography, etc. In this section the significance of the various forms of cardiac arrhythmia is duly set forth, and the indications as to treatment in each instance mentioned. A section on the symptomatology of heart affections follows, and after this the action and uses of each of the circulatory remedies are taken up in detail. Diet, pneumatotherapy, and electrotherapy are also discussed, while a special chapter by Prof. A. Strasser is devoted to hydrotherapy, and another by Dr. A. Bum similarly to mechanotherapy. The "special" discussion of heart disease—from the standpoint of the lesion present—occupies only 70-odd pages at the close of the volume. Much original material, however, will be found in this portion of the book, which will undoubtedly be appreciated by the German-reading practitioner.

STERILITY IN THE MALE AND FEMALE and its Treatment. By Max Hühner, M.D., Chief of Genitourinary Department, Harlem Hospital Dispensary, New York City; Formerly Attending Genitourinary Surgeon, Bellevue Hospital, Out-Patient Department, and Assistant Gynecologist, Mount Sinai Hospital Dispensary, etc. Pp. xvi + 262. New York: Rebman Company, 1913.

This book is the product of many years of original research on sterility, the material having been obtained by studies of patients, both male and female, in several New York clinics, as well as of private patients. Among the subjects specially studied were the question, how far, at various periods after coitus, spermatozoa penetrate in normal and pathologic cases, and the effect of douches, catarrhal secretions, inflammations of the genitalia, gonococci, prostatic fluid, various chemicals, etc., on spermatozoa. An original method of treatment is suggested for azoöspemia due to previous double epididymitis, consisting in the aspiration of the testicle through a large-sized hypodermic needle. In performing such aspirations in 13 cases of azoöspemia the author found spermatozoa in 38½ per cent. of the cases in the fluid obtained. In 15½ per cent. of the cases motile spermatozoa were

found and in the other 23 per cent. motionless spermatozoa. In the single case of sterility in which the author has injected into the cervix the aspirated testicular fluid, which contained live motile spermatozoa, success as regards impregnation was not obtained. The author presents a systematic study of the influence of effluvium seminis (or the flowing out of semen from the vagina after coitus), describes in detail a technique for recovering spermatozoa from the female genitals—a procedure which he considers preferable in establishing the responsibility for sterility to examination of semen in the condom—and sets forth a complete system for the treatment of sterility, based upon his own investigations. A preoperative diagnosis of the cause of sterility, he points out, can be made in many cases. The second half of the book is taken up by a complete history of the author's experience in examining 475 specimens for spermatozoa, followed by statistical tables and a bibliography.

SELECTED PAPERS OF DR. CARLOS J. FINLAY. Octavo of 657 Pages. Havana: Department of Health and Charities, 1912.

This large book, partly in English and partly in Spanish, represents a compilation of most of the papers of Dr. Finlay, published by decree of the Provisional Governor of Cuba at the close of the second American intervention in that island. As stated by Dr. Suarez, Secretary of Health and Charities, in the preface, the work of Finlay opened the previously closed path of progress and civilization in tropical America, and the confirmation of his theory of the transmission of yellow fever by the mosquito may be said to have been the most important step forward made in that region since its discovery by Columbus. The work begins with biographic notes by Dr. Juan Guiteras. Then follow in succession about 40 papers on yellow fever by Finlay, some with an English version. The first papers were published at far back as 1881, and in them Finlay first expounded his theory of mosquito transmission. The last paper was one read at the Berlin Congress on Hygiene and Demography in 1907. At the close of the volume are a couple of papers on cholera transmission and filariasis, followed by a complete list of Finlay's numerous publications on both typhoid fever and other subjects. The compilation forms a splendid monument to the industry and foresight of one of the greatest of Cuba's sons.

ESSENTIALS OF PRESCRIPTION WRITING. By Cary Eggleston, M.D., Instructor in Pharmacology, Cornell University Medical College, New York City. 32mo of 115 Pages. Philadelphia and London: W. B. Saunders Company, 1913. Cloth, \$1.00, net.

This, while the smallest, is also one of the most wisely planned books on prescription writing the reviewer has seen. Care has been taken to select the really essential facts, and, furthermore, so to order them that the student will learn the subject most easily and effectively. The chapter on Latin grammar is short but complete, supplying information both on declension of pharmaceutical (and not other irrelevant) words and the meaning of the various terms and phrases commonly used in pharmacy. Special chapters are devoted to the grammatic construction of the prescription, weights and measures, the practical writing of prescriptions, dosage, vehicles, incompatibility, modes of administration, and the suitable methods of prescribing each of the various kinds of official preparations. Inclusion of a few more illustrative prescriptions would be advantageous, in the reviewer's estimation. The work as it is, however, can be very warmly recommended.

IONIC MEDICATION. By H. Lewis Jones, M.D., Fellow of the Royal College of Physicians of London; Consulting Medical Officer to the Electrical Department in St. Bartholomew's Hospital, etc. Pp. viii + 151. Philadelphia: P. Blakiston's Son & Co., 1913. Cloth, \$1.50, net.

The evidence which the author has assembled in this concise little volume shows plainly the value of ionic medication as an addition to available methods of treating disease. While academic discussions still take place concerning the question whether any effective penetration of the ions occurs or not, good results have undoubtedly been obtained with this procedure, and that is the most essential point for the present. In the first two chapters the theory and technique of ionization are taken up. Chapter III is on the antiseptic metallic ions,—zinc, copper, mercury, and silver,—the uses of which in various forms of ulceration, sinuses, trachoma, ozena, antral suppuration, otorrhea, deafness, rectal fissure and fistula, hemorrhoids, urethritis, boils, ringworm, alopecia, etc., are set forth. In the next chapter are taken up lithium ionization in gout, magnesium for warts, radium, quinine in neuralgia, and the introduction of alkaloidal bodies such as cocaine and epinephrin. In Chapter V the uses of the salicylic ion in the neuralgias, arthritis, lumbago, sprains, acne, etc., are discussed; in Chapter VI the use of the chlorine and iodine ions in fibrotic and superficial tuberculous conditions, etc., and in Chapter VII miscellaneous ions such as uranium, arsenic, lactic acid, etc., are considered, and the process of negative electrolysis explained. The experience of numerous observers with ionization in the various conditions referred to is given in the text. The book is simply and clearly written, and affords an excellent condensed account of the entire subject.

The General Field

Conducted by A. G. CRANDALL

The Increase in Pneumonia

Pneumonia, which during the Philadelphia summer practically becomes negligible, assumes greater importance during the colder season. During the hot months of July and August, the air is constantly surcharged with floating dust particles, which are said by sanitarians to contain all conceivable forms of germ life. In the winter season frequent rains reduce the dust in the air to a minimum. And yet the number of pneumonia cases reaches an appalling figure in winter.

Pneumonia develops among the poorly fed and poorly housed; on the other hand, it also develops among the well-to-do.

Out of the fog of uncertainty as to the real origin of this disease, however, certain deductions can be safely made, viz., that pneumonia is a disease of the colder temperatures to which people who are accustomed to hygienic living and who protect themselves from the extremes of cold by suitable clothing are reasonably immune, although the well-fed who are habitually exposed to cold, and therefore become accustomed to it, are seldom attacked. Those who live luxuriously, accustomed to warm interiors, but who occasionally venture out insufficiently protected, seem to rank with the poorly fed of unhygienic habits in their susceptibility to the disease.

Reduced to its elements, the prevention of pneumonia seems to rest largely upon the avoidance of any excessive chilling of the body.

Moderation

Because the English business man takes a long time for lunch and then knocks off for tea drinking later in the afternoon, he is the object of ironic comment not only by the thrifty Scotchman and the lavish Irishman, but especially by the dollar-chasing American.

But it must be apparent to these critics that, all being considered, the Englishman gets a great deal of solid comfort out of life, while his grip on the world's commerce is as yet unshaken. Therefore, according to prevailing standards, the Englishman is a very successful man.

And the ruling factor in this success is that moderation which is the cornerstone of good judgment.

It is the lack of physical poise resulting from the habit of haste and restlessness which leads to half-baked business schemes, and the demoralized kidneys often associated with a desperate attempt to make these schemes succeed. After fifty "getting in bad" in business is a conspicuous etiological factor.

* * *

Woman as an Executive

Under the stress of modern business life emotionalism cuts a sorry figure. An executive holding an important position, whether in educational lines or in any of the departments of commercial life, must preserve that equanimity which is essential to the exercise of sound judgment.

Aside from the dramatic stage, temperament in that acceptance of

the term which makes it synonymous with emotionalism, has no legitimate place. Business successfully conducted is a matter of mathematics rather than nerves.

According to the latest census, there are 17,000,000 unmarried men in the United States. Presumably there is an equal number of unmarried women. A considerable proportion of these women are self-supporting, and occasionally there is developed a woman who shows capacity for an executive position which enables her to compete successfully with men who may have been regarded as qualified to hold similar positions. It is a fair guess that these successful women executives have succeeded in divesting themselves to a very large extent of the emotional part of their equipment.

The recent election of a woman teacher to a highly responsible position in Philadelphia was the occasion for a very acrimonious discussion on the part of the School Board. This was undoubtedly due to an undercurrent of belief that women as a class are temperamentally unfitted to hold positions requiring not only the exercise of most excellent judgment in various details over which they have supervision, but the display of perfect equanimity at all times as regards the criticism which they are sure to encounter, some of which may be justified and some of which may be entirely unreasonable and unfair. Men in similar positions usually accept such criticism and discount it in advance. They take the position that they will be guided by their best judgment, and, resting on that foundation, will make themselves immune to the comments of those

who are actuated by ignorance of the facts, or by normal disposition to be captious and harsh in their estimate of the motives of others.

Until women, who may be called upon by the development of events to positions of responsibility, are wise enough to assume a similar attitude of indifference to criticism, it may be expected that their important missions will fail.

* * *

A Mixed Subject

The desire to improve others is deeply implanted in the human breast. The present eugenic movement now in full blast is one of the most recent examples.

The basic argument in favor of the prevailing brand of eugenics is that at least as much care should be shown in breeding human beings as in stock raising. No widespread crusade was probably ever built up upon a more flimsy foundation.

There are no authenticated instances of marked incompatibility of temperament between the sexes in the breeding of horses, cattle, or other animals. Hence we can eliminate from this unique comparison a most generally admitted cause of inferior human progeny, namely, lack of congeniality between parents. The offspring of the dutiful daughter who reluctantly marries the man selected for her by her worldly wise parents are usually far inferior to the children of the more willful daughter who elopes with the man of her choice.

The marriage of first cousins who have both inherited some family weakness or who are marked examples of family type is regrettable; but such marriages seldom occur because of the lack of mutual attraction.

When these marriages do occur among cousins who have opportunity for a reasonably wide circle of acquaintances, the law of natural selection can usually be depended upon to prevent serious errors.

When cousins marry who are normally attracted to each other, the result of such a union may be a possible Abraham Lincoln, whose parents were of the now frequently prohibited consanguinity.

* * *

Limiting the Sphere of Action

Just why it is that so many physicians hedge their own activities about with so many artificial barriers is at present hard to understand.

Nearly every doctor who has been long enough in practice to acquire a reasonable degree of reputation has a certain number of families under his professional guidance who regard him as the one physician who is an absolutely safe counsellor. And yet these patients' confidence is often sadly misplaced because of the doctor's abnormal modesty.

It would not be professional, of course, for a family practitioner to be drumming up trade. But on the contrary, if a family reposes such confidence in their physician as to eliminate all other practitioners from their consideration, it then logically becomes the duty of the family adviser to exercise a watchful supervision over each member of the family, so as to prevent the gradual development of a functional difficulty to the more serious stage.

Absolutely normal function is seldom found in any individual. All deviations are a physical handicap and yet millions of adults who pronounce

themselves to be in good health, but are not, are having their efficiency impaired and their lives shortened because, unless they are downright ill, they never trouble the doctor and he never troubles them.

Such a state of affairs is hardly consistent with an enlightened and practical age.

* * *

Safer Than at Home

The Pennsylvania Railroad reports that, although they have carried 111,000,000 passengers during the year 1913, not one was killed by a train accident on their line.

This is a record of which to be proud. The conclusion which might naturally follow this report would be that there was more danger of people being killed by falling down stairs in their own homes than in taking a train over the Pennsylvania line.

As the year's harvest of deaths by railroad accidents will, however, no doubt prove to be an excessive one, taking the country through, it serves to emphasize the difference between scientific methods of conducting a railroad and the haphazard methods which unfortunately still prevail on many lines. The predominating factor in this gratifying immunity from accidents is undoubtedly identified with the magnificent equipment of the road. The railway system which operates a large number of trains on a single track cannot offer the same degree of safety to its traveling patrons.

* * *

Panic

Those optimists who consider that humanity has made considerable progress since the stone age always

get a jar when people trample each other to death in some crowded hall or factory. At such times the advancement of centuries of development seems to have vanished, and mankind sinks to the level of the sheep.

Once in a while such a mob of terrified humanity can be held in check if confronted by a cool-headed person with a pistol, but usually control is impossible when once the real mob panic is in evidence.

All the safeguards which human intelligence can devise are of no avail when the restraints of civilization are dispelled in a moment by the elementary instinct to escape.

The animal still predominates and all flesh is grass.

* * *

The Public Pound in Texas

In the early days in New England, it was the custom at the annual town meeting on the first Tuesday in March to elect a pound keeper. The functions of this official were to provide shelter for such domestic animals as might have strayed far from home and thereby become a public nuisance.

Just now the State of Texas is acting as a public pound keeper for the United States of America. When the climate of Mexico gets too hot for certain non-combatants they hurriedly prepare a few rations of *chili con cani* and start for the Texas border. They usually arrive there hungry and as hospitality is one of the predominating instincts of Texas they do not remain hungry very long.

Just how many refugee Mexicans there are in Texas cannot be definitely learned, but there are enough of them to present quite a problem, and Texas is wondering how long it must provide board and lodging for destitute Mexicans.

* * *

The Meanest Man

The catalogue of meanest men contains some choice specimens without doubt. Among them may be mentioned that apology for a sneak thief who robs the baby on the way to the corner grocery store, and the boss of the construction gang who docked a man for the time lost while he was being blown up in the air by a premature explosion.

There is some excuse for a man who robs a hen roost, as he may be hungry; and although it is hard to find any excuse for the financier who robs widows and orphans, he and all his above-named associates are to be commended in comparison with the man who sells adulterated or impure foods for family use.

In most cities it is now possible for a man to work off "bob" veal, stale fish, more or less putrid poultry, and if detected escape with a small fine. We have had a superabundance of legislation on a great many questions the ethics of which are still more or less indefinite in the minds of those who know the most about them. Time would be much better spent in finding effective remedies for the prevailing tendency among vendors of food products to take chances with the public health for the incidental large profits.

Improved Bacterial Therapy

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2. **SEROBACTERINS** produce immediate active immunity.

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To remedy the first of these defects, experiments were made with mixtures of serum and killed bacteria, with the idea that by this means immediate passive immunity could be had, as well as a more permanent active immunity, but this procedure resulted in failure, as only a slight degree of passive immunity was secured and no active immunity whatever. Besredka attributed this failure to the excess of serum present in such mixtures, and for the preparation of his "sensitized vaccine" took advantage of the discovery of Ehrlich and Morgenroth that bacteria mixed with the serum-containing specific antibodies unite permanently with such antibodies. After maceration in the immune serum for a sufficient time the sensitized bacteria are recovered by centrifugalization. The bacteria, with their antibodies attached, are then washed in the centrifuge with physiologic saline solution until

all traces of serum are removed. Careful complement fixation and animal tests are employed to make sure that proper sensitization has taken place, and finally the bacteria are made up into standardized suspensions for administration. Since the value of serobacterins depends on thorough sensitization, and the complement fixation test proves the extent to which this has taken place, his test constitutes a vital part of the technique.

Besredka claims that sensitized bacterial vaccines or "serobacterins" possess a great advantage over the bacterial vaccines now in common use, in that their action is far more rapid, and they produce no clinical or opsonic negative phase, and no local or general reactions. His researches have been confirmed by such prominent investigators as Marie, Remlinger, Dopfer, Theobald Smith, Metchnikoff, Gordon, and others, all of whom found that sensitization of bacteria confers upon them new properties which render them highly effective as vaccines, free from the defects of the ordinary bacterial vaccine and "possessing an action which is *certain, inoffensive, rapid, and lasting.*"

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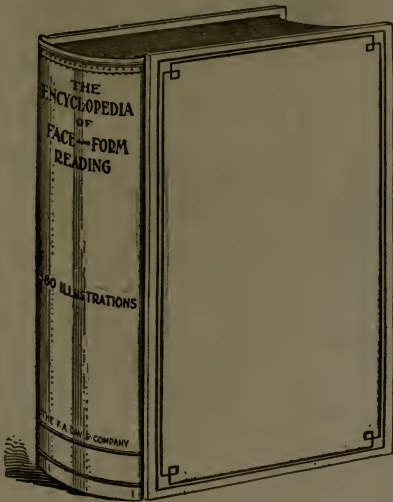
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